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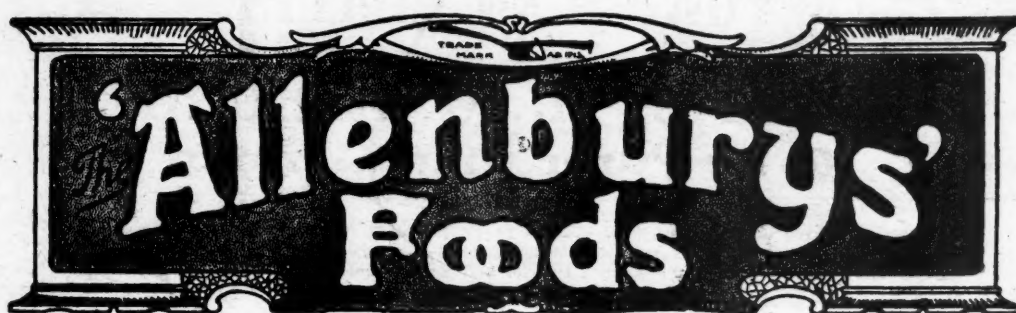
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VOL. I.—4TH YEAR—No. 22.

SYDNEY: SATURDAY, JUNE 2, 1917.

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THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. I.—4TH YEAR.

SYDNEY: SATURDAY, JUNE 2, 1917.

No. 22.

NO. 2 AUSTRALIAN CASUALTY CLEARING STATION, IN FRANCE.

By Lieutenant-Colonel H. S. Stacy, Australian Army
Medical Corps,
Commanding Officer.

(Continued from page 440.)

Surgery.

Before classifying the cases regionally, I will outline the broad basis of treatment in general, and prior to doing this, will indicate briefly the differences between gun-shot wounds in a war such as this, and the wounds of civil life:—

(1) The sepsis is driven in deeply by the missile, it comes either from the skin or clothing. The dirt on both of these is infected with the organisms of the heavily-manured soil of France; many of these are anaerobic. The moral from this is that it is practically useless doing anything more for wounds than applying the first field dressing, until the patient comes to a place where the wound can be thoroughly explored and excised. This was too often lost sight of, particularly earlier in the war, and was not thoroughly realized even by us at our first take-in.

(2) In a great many cases there is a foreign body present, usually a piece of shrapnel. In most cases the wound would not heal until this is removed.

(3) There is nothing in civil surgery approaching the shock which accompanies many of these wounds. This is partly due to the accompanying cold and generally uncomfortable condition of the soldier, and possibly it is intensified by the nervous element; for though there may be some who do not mind a heavy and continuous bombardment, still they are in the minority. This severe condition of shock is present in all but the minor wounds (so-called walking cases). The latter are practically unaffected, and they sometimes come in smoking and joking. I have seen such severe shock in the case of multiple wounds of limbs merely that one is almost convinced for a time he must be suffering from a visceral lesion. This condition of shock has a big bearing on treatment, for many, if operated on while still suffering from it, will die; and yet one is faced with the other alternative sometimes, that if not operated on, his wound will become gas-infected, and death will quickly follow. One requires the wisdom of Solomon to decide which is best.

General Outline of Treatment.—It follows from the above remarks on the origin of the sepsis that the ideal treatment would be excision of the whole track of the wound, and in practice this is aimed at as far as possible. It is, however, not so simple as it looks. The track has a habit of getting obscured at times; through a fascial covering of muscle it may be merely in the form of a slit, and in the muscle itself may not always be easy to find, though frequently there is quite a cavity, owing to the very

explosive effect the missile has on the soft tissues. There is nothing better as an indication of the track than the presence of dark blood clot. Unless the wound is a through and through one, the foreign body will be found at the end of it, and along its course may be nearly always extracted portions of clothing, etc. This is particularly the case with shrapnel, owing to its irregular, jagged shape. With a bullet it is rare to find clothing carried in.

It is not very common for a bullet to remain in the body, although curiously enough during the last few weeks we have had some cases as an exception to this rule. Bullet wounds are mostly through and through. Shrapnel may be, but more frequently is not. If the wound is a through and through one, excision of the track would be done from both ends. In every class of wound care must be taken not to injure any important structures, such as a vessel or nerve. As organisms quickly penetrate deeper than the surface of the track, it follows that the earlier excision is done the less trouble there will be in combating sepsis.

Another important point is to stop all hæmorrhage carefully, thus depriving the organisms of blood clot to act as a nidus.

Removal of a Foreign Body.—The foreign body may be some considerable distance from the entrance wound, so that we examine by means of X-rays in practically every case. To say that this has simplified the work of the surgeon and saved the patient much suffering is to put it mildly. In most cases pictures were taken in two planes, and in many the most modern localizing apparatus was used. If the foreign body was a bullet, and placed deeply, it was left alone, as we know that bullet wounds frequently ran an aseptic course. With shrapnel under the same conditions, an endeavour was made in nearly every case to extract it. All wounds are irrigated, usually with eusol, occasionally with potassium permanganate solution and hydrogen peroxide.

Further Treatment of Wounds.—We had four alternatives:—

(a) The ordinary method adopted in civil surgery, *e.g.*, drainage by rubber tubes in the most dependent position, with subsequent washing out daily by antiseptic solution.

(b) Carrel's method, in which small-sized rubber tubing, punched out here and there, surrounded with several thicknesses of gauze, is employed; usually two, three or four tubes are used, leading into the various recesses of the wound and connected externally to a branched glass tubing, common to them all. Carrel lays stress upon the importance of not having it counter drained, otherwise the hypochlorite solution escapes too rapidly. Eusol is poured into the common tube every hour, and thence

escapes into the recesses of the wound. The gauze is changed daily.

(c) The salt pack method, in which tabloids of sodium chloride are packed on to gauze laid out in the fashion of a handkerchief dressing. This dressing need not be disturbed for three or four days, and is then renewed for an even longer period.

(d) What is known in this Army as the "B.I.P." method (in other words bismuth iodoform paste), of which the formula is as follows:—

Bismuth subnit. one part, by weight.

Iodoform subnit. two parts, by weight.

Paraffine molle, a quantity sufficient to make a stiff paste.

At Compeigne, where Carrel works, his system is carried out most scientifically. Cultures are taken from the depths of the wound every four days. It is found to be sterile in anything from seven to forty days; the edges of the wound are then stitched together. But in the average clearing or other hospital, one has neither the time nor the large specially trained staff at one's disposal, for it is an essential part of the treatment to dissect out every portion of the track thoroughly, in order to get a wound to heal quickly.

We have a special orderly, known as the Carrel Orderly, whose duty it is to instil eusol every hour into those cases in the two main surgical wards; but in the rush of work it is quite impracticable to spend the time in operating on each case that Carrel demands. Still, in spite of the fact that we do not get such quick and universally good results as at Compeigne, I consider it the best line of treatment for most wounds at the front.

As to the salt-pack or hypertonic treatment, of which we had seen such splendid results in one of the base hospitals at Rouen, we soon found that it had its limitations, and latterly have only used it where the wound was widely opened externally.

This treatment, like any other, whether Carrel's or the "B.I.P.," is quite safe, if you can be sure of having removed all the septic track, but if some of the deeper portions of this have been left behind, and your external opening is a narrow one, your salt-pack acts as a plug, and disaster follows. Even with a wide, extensive, opened wound I have seen disaster follow. It should not be used, even in these cases, if there is the slightest suspicion of odour about the wound, for a salt-pack shuts out the air and provides the anaerobic organisms with just the conditions they desire. But where suitable it has the immense advantage of easing the strain of dressings in the ward; what this means will be readily understood by any surgeon or Sister, who has worked at the front. It also means a great saving of pain and distress to the patients.

As to the "B.I.P." method, I regret to say I have little personal knowledge. It sounds unsurgical, but it is backed up by very high authorities, and supported by some splendid results. The action of the paste is said to be strongly phagocytic. Here again I should say, it is essential that the track must be

thoroughly excised. The few cases in which so far it has been used here appear to be doing well. The track is cleaned out as far as possible, filled with paste after being dried with spirit, and the skin edges then sutured. The stitches should not be removed for three weeks. I have been told of many cases where it has been used in which I should have thought it would have been unsuitable, and yet the results were excellent. The outer dressing need not be changed for days. Naturally this means much saving of pain and distress to the patient, and saving of time and material to the hospital. It will be understood from the foregoing how important it is for successful treatment, to get the cases early; for organisms soon penetrate deeply, beyond the reach of knife or antiseptic.

It is extremely important in my opinion, therefore, that well-equipped clearing stations should be close to the front. The earlier efficient treatment is instituted, the very much earlier will the wound be healed.

Bandages.—Triangular bandages have to some extent superseded the roller, since they save time, and allow rapid access to the wound.

Dressings.—Although of course in the main cotton wool was used, still for the very large dressings sterilized Sphagnum moss proved both economical and efficient.

Head Wounds.

It is practically a universal practice in all military hospitals to excise scalp wounds and investigate the underlying skull, but even if this is normal and there are cerebral symptoms, the skull is trephined and further exploration made. Quite frequently, there is only a slight fracture of the outer table and a much more extensive one of the inner. This is practically always accompanied with some extradural hæmorrhage, but I have seen a small extradural hæmorrhage causing paresis of the leg without any fracture whatever; it was immediately subjacent to a scalp wound. Most head cases were submitted to operation, the scalp wound being excised, the wound of the skull enlarged, and the extra dural-blood clot being removed; there, in most cases, it is wise to stop. If the *dura mater* has been penetrated and a foreign body is present in the brain, an attempt may be made to remove it, but it seems to be rarely successful unless it is quite near the surface, in which case intracranial pressure is often sufficient to extrude it.

To incise the *dura* deliberately, though there may be sub-dural hæmorrhage, is, I think, rightly looked upon as bad surgery; the cruciform incision in the *dura* will not come together again; a portion of the cerebral-cortex is left exposed to form adhesions, and a possible subsequent source of Jacksonian epilepsy. To obviate this, however, a portion of the *fascia lata* of the thigh may be stitched over it. Another reason against opening the *dura* is the possibility of the spread of sepsis inwards.

As to removal of the foreign bodies from the brain, opinions seem to differ. Some statistics appear to show that no harm is done in quite a number

of cases. I know of some that have been followed by a cerebral abscess. From *post mortem* observations I think that a small-sized finger can be inserted along the track, without doing any fresh damage. The track, I have found, has usually been quite a wide one; nevertheless there is no reason for anything but the utmost gentleness. Hull, who has been very successful, passes a pair of forceps along his finger to extract the foreign body.

As to drainage, provided that the foreign body has been removed, and the case has been received reasonably early, the wound can be stitched up without drainage; but if in doubt it is wiser to insert a tube. When used a perforated zinc tube is preferred by Sargent to a rubber one. Here again it seems to me the discrepant opinions of some of the surgeons may be explained by the time at which the patient is operated on. If secured early, probably the majority of intra-cerebral cases may be left without a drain. I am sure that many cases of subsequent persistent headache after head injury are saved by an early decompression operation. In all head cases that come to autopsy, it is noticeable how frequently there is a diffuse sub-arachnoid hæmorrhage over portions of the cerebral hemispheres, even away from the lesion; these are presumably due to concussion. Punctate hæmorrhages in the substance of the brain are also frequent.

There is one class of case in which I have rarely seen recovery follow, *viz.*, the through and through wound. It is perhaps wise to operate, and raise or remove any particles of bone exerting pressure at the wound of entrance, but in spite of all, the patients usually remain in a position of cerebral irritability, and die within a week or two. In head cases a rapid pulse is always looked upon as a bad omen; at the same time it does not follow that all cases in which the pulse-rate is fairly normal, do well. A high temperature is as a rule also a bad sign. We frequently examine head cases with X-rays in the antero-posterior and lateral planes, but owing to the spherical contour of the cranium the radiographs do not always give full information, though they are frequently extremely valuable, and may show a fracture and depression of the inner table that may not have been suspected. One cannot always discriminate in the radiograph between a fragment of bone driven in and a foreign body.

Steel helmets have reduced the incidence and the severity of head wounds. They are particularly valuable against shrapnel and revolver bullets. Against rifle bullets, except at long range, they are not of much value.

I understand that, when in "No Man's Land," on patrol duty, the men prefer not to wear them. The story is told of two men out in No Man's Land one night with helmets on, who struck their heads together on rising from the ground; the noise in the stillness of the night sounded like cathedral chimes.

Spinal Cases.

Fortunately we have not had a great number of these; none have been operated on, since it is held that the mischief has already been done, and no

operative measures would improve it. In one or two doubtful cases patients were quickly evacuated to the base, in case they might wish to operate there, with a greater number of skilled nurses to hand. The majority of the wounds were in the dorsal region; the only patient with wounds in the cervical region died in three or four days. Practically all were due to bullets.

Mouth and Pharynx.

I can recall two instructive cases. One was in a patient who died of asphyxia, just as he was brought to hospital; a large piece of shrapnel was found resting on his glottis. The second was a through and through neck wound, lacerating the floor of the mouth *en route*. He died under a general anæsthetic owing to the blood continuously trickling down his larynx. The neck wound being explored from the outside, it was not realized till it was too late that the floor of the mouth was wounded.

Penetrating Chest Cases.

These are frequent, and come in much shocked and distressed, but after morphine and placing the men in a semi-recumbent position, they get much relief, and lose some of their lividity. Hæmothorax quickly develops, sometimes a pneumo-hæmothorax, if so, the air is absorbed as a rule after a few days. If the lung is injured the patients expectorate blood for a short time. The temperature rises to 101° or 102° F., but after the third day—sometimes as late as the sixth—if the hæmothorax is uninfected, it subsides to normal. The pulse-rate in an uninfected case rarely rises to the same degree, and is a very good guide.

The hæmothorax comes from an intercostal vessel, from the subclavian or the lung; if from the subclavian, the issue is usually fatal. A certain number of these cases run a sterile course, and need nothing beyond rest, and perhaps aspiration; but in quite a large number the hæmothorax becomes infected from the missile or the indriven clothing, and if not evacuated, causes death. The blood in such cases is nearly always dark and fluid, and free of clot, and often foul smelling.

The most common infecting organism, as in most of the wounds on this front, is the *bacillus aerogenes capsulatus*, or a similar organism of the anaerobic group; occasionally a *staphylococcus* or *streptococcus*. Death may be astonishingly rapid. I have seen it happen in 48 hours from the time of infliction of the wound. In this case, the hæmothorax was teeming with the *bacillus aerogenes capsulatus*. Portions of the rib are usually driven into the lung, and in one autopsy I found marked pneumonic consolidation with the bone fragment in the centre of it. By other observers pneumonia is said to be a rare concomitant.

Frequently the foreign body is not discovered, and it may give rise to no further trouble, but I have seen death follow secondary hæmorrhage, due to a piece of septic shrapnel lying in the lung. A class of chest wound, which usually causes death within 24 hours, is that in which there is consider-

able laceration of the lung substance. As a result of this, blood is effused into the uninjured part of this lung, up the bronchus, and down into the lung on the other side. The combined effect of this and the hæmothorax is generally sufficient to kill within a short time.

In cases of pneumo-hæmothorax, in withdrawing the blood from the pleura, it is wisest not to use any suction, otherwise the wound in the lung may not heal quickly, and, I think, is liable to infect the hæmothorax from the small bronchi.

Opinion is divided as to the correct treatment for uninfected hæmothorax. There are some, as Colonel Herringham, who recommend a policy of leaving alone, partly, I think, on the grounds of the risk of recurring hæmorrhage.

At a recent meeting of the 2nd Army Medical Society, an interesting paper was read by Captain Armstrong, No. 8 Casualty Clearing Station, in which he recommended aspiration about the third or fourth day, on the ground, firstly, that it gave the immediate relief; secondly, that it removed a possible nidus of infection; and, thirdly, that it yielded better functional after-results. Recurrent hæmorrhage apparently never occurred. Personally, I think this is the correct attitude, and in addition would advocate the early use of the exploratory syringe, accompanied by a bacteriological examination. For clinical signs are apt to be deceptive, and a case may quickly succumb to infection before we suspect its presence. Patients are occasionally evacuated, apparently fairly well, to the base, but afterwards the chests have to be opened; evidently the infection has been localized for a while, and later become generalized throughout the effused blood. If the patient is too ill for a rapid rib resection, as a temporary measure, a tube should be inserted through an inter-costal space. When the lung is perforated by the missile and a bronchiole is injured, infection of the resultant blood clot is apt to follow, particularly when the patient is already suffering from bronchitis, which is quite frequent during the rigorous winter. A recent case illustrated this well. A bullet passed through the upper lobe of the lung, causing a small hæmorrhage into it, and a hæmo-pneumothorax. He was well for a few days; a bacteriological examination showing it to be sterile; he then developed high fever, dyspnoea, etc., and died on the fifth or sixth day. Post mortem, an abscess of the lung was discovered, with surrounding broncho-pneumonia and a hæmothorax infected with streptococci, which were also found in the lung abscess and the bronchi.

An interesting observation I have made in the post mortem room is that in those cases in which the pleural cavity is obliterated by adhesions, hæmorrhage takes place into the wounded lobe of the lung, and death rapidly follows. In ordinary hæmothorax the lung is much collapsed. I have not noticed the contra-lateral collapse spoken of. Concussion hæmorrhage, particularly in the edges of the lobe, is quite frequent.

Abdominal Cases.

Of these we get a moderate number. Recently steel body-guards, protecting the chest and abdomen fore and aft, have been introduced, but so far only in a limited number, and more or less restricted to raiding parties. The average percentage of recovery of the cases operated on in casualty clearing stations varies from 40% to 50%. Wounds of the large intestine appear to be more serious than those of the small. Possibly this is because of the difficulty of access; for it is a curious thing how frequently the hepatic and splenic flexures get hit. Accompanying these there is frequently a wound of the lower portion of the pleural cavity with its attendant danger. Another reason may be, that the mucosa of the small intestines tends to extrude and obliterate the opening, thus for a time, at any rate, hindering escape of bowel contents. The wounds of entry may be small and inconspicuous, and may be as low as the gluteal region. Of physical signs, rigidity is the most valuable, and is not abolished, even though a large dose of morphine, e.g., $\frac{1}{2}$ grain, has been given. The presence or absence of liver dullness is practically no guide. The temperature is usually sub-normal, the pulse normal in rate, though feeble, perhaps, and there are signs of considerable shock. There is no doubt the rule is to operate.

Wounds of the Bowel.

These are usually multiple, and if close together, it is advisable to do excision rather than waste time in suturing each laceration. One is never safe in closing up without a most complete search of the whole intestinal tract. It is usual not to wash out the peritoneal cavity, but merely to adopt local sponging. Washing the peritoneal cavity with eusol or other antiseptic solution has been found useless.

To combat the shock an intravenous injection of 30 ounces of saline solution, together with pituitrin, during the operation is useful. Captain Marshall has shown in his work on anaesthesia that it is safer to excise the wound tract, if it is in the back, prior to laparotomy, than after; it causes distinctly less fall of blood pressure than if the patient is turned over after the operation.

The excision of the parietal wounds of entry and exit are particularly important; infection of the former may take place from the missile or clothing, as in other wounds; in the latter, it probably originates frequently from the contents of the injured bowel. I have seen several patients die, on or about the third day, from gas infections of the abdominal muscle in the exit wound. The moral is, that in addition to excision, these wounds should receive the same careful after-treatment as wounds of the body generally; Carrel's treatment, in my opinion, for preference.

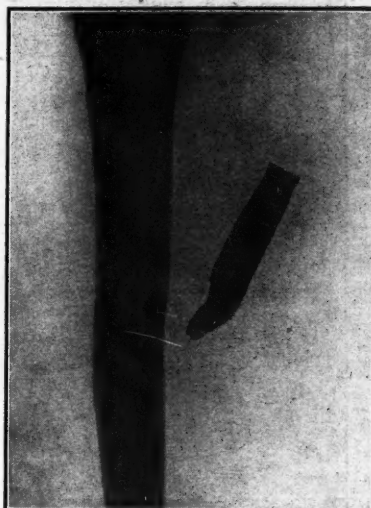
It is not common to find the foreign body even at the autopsy.

Bladder Wounds.

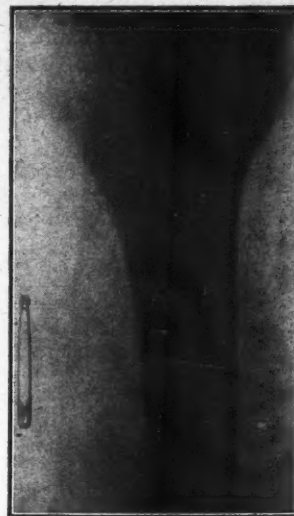
These are particularly dangerous. In most of them, curiously enough, the entry wound has been in the gluteal region. Sepsis in the pelvic connective



Shattered Elbow, caused by Shrapnel Bullet.
Under the care of Captain Pearce.



Portion of Driving Band in Leg.
Under the care of Captain Burkitt.



Perforation of Femur by Bullet.
Under the care of Captain Craig.



Gas Gangrene around Ankle.
Under the care of Lieutenant-Colonel MacLaurin.



Shrapnel Fragments in Brain.
Under the care of Captain Burkitt.



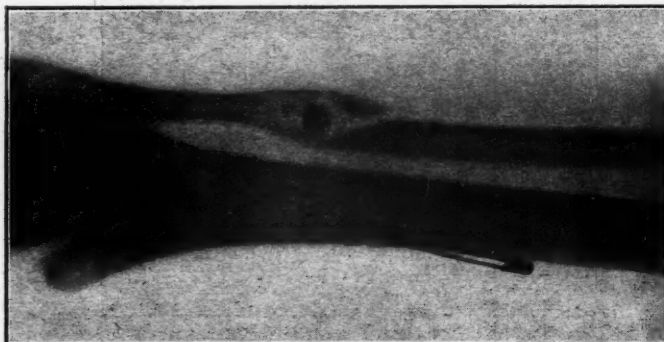
Fragments of High Explosive Shell Piece
Embedded in Condyle.
Under the care of Major Barton.



Damage caused by Bomb, showing Multiple
Fragments.
Under the care of Captain Burkitt.



Common Type of Fracture caused by Missile.
Under the care of Major Barton.



Shrapnel Fragment Embedded in Fibula.
Under the care of Captain Burkitt.



Shrapnel Fragment in Bladder.
Under the care of Captain Burkitt.

tissue was the cause of death in one, and I do not see how one can combat it.

Wounds of the kidney may be difficult to distinguish from intra-peritoneal lesions, since one gets rigidity, etc. In one case, accompanied by an extensive retro-peritoneal hæmorrhage, death took place owing to the infection of the latter by *bacillus aerogenes capsulatus*, *streptococcus*, and other organisms. This shows the importance of liberal excision of the wound, and evacuation of all blood clot, where possible.

Wounds of the Liver.

We have had several wounds of the upper surface of the liver, accompanied by a wound of the diaphragm; the latter has a peculiar effect of gripping the liver wound, with the result that the hæmorrhage mostly takes place into the pleural cavity, and very little into the peritoneum.

Wounds of the Spleen.

Beyond a slight laceration of the spleen, accompanying a bowel wound, I have seen no injuries of this organ.

Prognosis.

As to the prognosis of abdominal wounds generally, it is all largely a matter of the time that elapses between the infliction of the wound and the operation. Those that are operated on up to six or eight hours have a good chance; after that it diminishes and if there is one thing I would lay stress on, it is the importance of speed, large incision, and the avoidance of attempting ideal complete operations. In the majority of the fatal cases the patients fail to recover from the shock of the operation. Even if they have to be opened again in a few days' time, I would urge and urge again the necessity of getting in and out of the abdomen, as quickly as possible; this is particularly important in those cases not opened early. The cause of death is usually peritonitis. It is frequently not accompanied by much distension or rise of temperature, but the pulse is usually rapid in rate and always feeble. Vomiting, possibly fæcal, is present. I have known a patient to have fæcal vomiting, even to the extent of smelling of the turpentine, which had been given in the enema, and a fairly rapid pulse rate, yet his pulse volume remained good; he recovered.

I am inclined to attach more value to the volume of the pulse, as a prognostic aid than to any other sign.

Hæmorrhage from a Solid Viscus.

As a sign of hæmorrhage, flank dullness is utterly unreliable; rigidity is usually absent, as compared with its presence in a wound of a hollow viscus. The pulse may be misleading. I have seen the pulse rate 76, with profuse bleeding from the liver. Probably one of the most valuable signs in cases seen within a few hours of the wounding, is the pallor, coldness, and general collapse, which is greater than that seen usually in cases of wound of a hollow viscus.

All abdominal cases get from a quarter to half a grain of morphine at the aid post or dressing station. We have seen one case in which we are reasonably sure that an excessive dose of morphine, followed by

the anæsthetic, caused the patient's death. One is faced with the difficulty that it is not uncommon for soldiers to carry morphine tablets on them, and take one or more when wounded.

An autopsy made on the subject of a lacerated kidney and retro-peritoneal hæmorrhage, mainly restricted to the right side of the spine, showed a very marked distension of the large bowel, ending abruptly at the splenic flexure. The patient died of shock. Was this distension due to pressure on the sympathetic plexus on the right side, and was the shock due to this pressure?

Wounds of the Limb.

These are usually multiple, and may be accompanied by intense shock. Not infrequently, quite a large surface of the body is bespattered with tiny wounds, usually due to bombs. The wounds contain foreign bodies, such as mud, metal, clothing, portions of gum boots, etc. One can never tell from the outward appearance of the wound, how deep they will go; their length is sometimes surprising. The great risk of limb wounds is infection, particularly gas gangrene. This, from what we have observed in the living and the dead, has a particular tendency to limit itself to muscle groups, and is accompanied, though sometimes rather late, in most cases by bronzing and crepitation of the skin and superficial fascia. The origin of this infection seems to be in the muscle, and from the missile or clothing driven in. A very strong predisposing cause is injury to a large blood vessel. The infecting organism is usually the *bacillus aerogenes capsulatus*; gas is formed; this spreads between the muscle fibres, separating them and causing them to become pale and friable, to lose their contractility, and eventually to die. The gas frequently escapes through the rent in the muscle sheath, thence spreads subcutaneously, or it may track up along the sheath of the vessels. I do not think that the level of the gas bubbles should be any guide to the level of the amputation, if this is decided upon.

One will frequently see at the post mortem examination a group of muscles infected and another one lying adjacent, but of a different group, absolutely uninfected. The infection in its later days may become generalized; you get air bubbles in the areolar tissues throughout the body, and cultures of the organisms may be got from the blood. Enormous distension of the large bowel may be an accompaniment. Blood clot is also a medium in which the anaerobic organisms grow abundantly. Wounds of the calf, thigh, and buttock are particularly liable to gas infection, and on that account need early treatment. Instances are only too common, in which an apparently trifling wound of the calf or buttock has been followed by death in a few days. Toxæmia of gas infections is intense. Death may be appallingly rapid. The pulse rate rises until it becomes imperceptible. The temperature rises to 102° or higher, but frequently not so high; respiration is frequently rapid. The mind remains clear almost to the end. The pupils are usually dilated.

In the face of it, it would seem as if excision of the affected muscle group might sometimes take the

place of amputation, with its accompanying severe shock; but as far as I can learn, the result in practice has been about the same. Personally, I think there are cases of gas infection, such as in the thigh, where excision of the affected muscles would tide a man over a crisis, to be followed later, if necessary, by an amputation at the hip. A primary amputation will kill in these cases. A great many of the infected wounds at the front have a faecal smell, but one has to guard against the error of assuming that they are necessarily gas-gangrene; they only resemble it in smell; in them the infection is purely local. To treat them as gas gangrene would be to do a good many needless amputations.

I can recall one interesting case, in which a patient's multiple wounds were satisfactorily dealt with; yet he died after some days. The autopsy disclosed a tiny, almost imperceptible wound of the hairy scalp, which led to the laceration of the brain, due to the tiny piece of shrapnel. It is not infrequent for a missile, particularly a bullet, to wound two soldiers; sometimes it may pass through a chest or abdomen, and then through the arm of the same patient.

It is often a good plan, in order to save time and thus shock, to have two surgeons operating together on a case of multiple wounds.

Compound fractures are very numerous, naturally in these the radiograph has been of enormous value. The missile is occasionally embedded in the bone, and if not quickly removed, may be followed by osteomyelitis. In these cases, the fluorescent screen is of particular value as an aid during the operation. Radiograms do not show clearly whether the foreign body is within or outside of the bone. In a great many cases of compound fracture, small fragments of bone are driven in all directions. Although eminent surgeons at the base write of the advisability of retaining as much bone as possible, this is not the opinion of the clearing casualty station surgeons, who have to face virulent infection of a type which surgeons at the base never see.

At the front it is essential to remove any fragment behind which infection, particularly gas infection, may grow apace. For the treatment of compound fractures, the various iron skeleton splints of Thomas and others advocated by Colonel Jones, R.A.M.C., are invaluable. Extension is usually applied in thigh and leg cases, but never needs to be strong, as the fragments, as a rule, do not overlap, and the tone of the surrounding muscles is interfered with by the trauma of the missile.

Gas Gangrene.

Some writers in the journals have drawn attention to the radiographic appearances of gas gangrene. It certainly shows a mottling of the plate due to the gas in the tissues, but we find clinical signs so much more reliable that we seldom use the X-rays as a diagnostic aid. One must also be careful not to confuse the spaces in the tissues caused by the missile, with those due to gas infection.

Burns.

Latterly the French preparation *Ambrine* has been used for these with great success. Shortly the Army hope to replace it with what is called No. 7 paraffin, consisting of beta-naphthol, eucalyptus, olive oil and paraffin, owing to the expense of *Ambrine*.

Amputations.

In the reaction against the suture of amputation stumps came the guillotine method; it is generally realized now that these are not always necessary, and moderate flaps have returned, but without suture.

We have found injuries to the main vein of the limb a more potent source of gangrene even than injuries to the artery.

Tetanus.

Fortunately we have not seen a single case of this, owing to the care with which anti-tetanic serum is given in the field ambulances. If omitted there, it is given here. The practice of the Army is to give 500 units weekly, until the wound is healed.

Urinary Calculi.

Curiously enough we have had four cases of ureteric calculi; these were all evacuated to the base with their radiographs.

Eye Cases.

There is an Ophthalmic Consulting Surgeon available, if necessary; he decides if a foreign body is likely to be successfully removed by the powerful electro-magnet in one of the stationary hospitals at Boulogne. If so, the patient is dispatched there at once by motor ambulance.

Appendicitis.

Of these we have many cases, both from our own unit and from the battalions; all the patients were operated on and did well.

Anæsthesia at the Front.

Warm ether vapour is given more often than any other method, but during the induction stage a little chloroform is used, and during the operation we have found it necessary to pour on a little open ether at times. The big doses of morphine that some patients got before reaching the hospital occasionally embarrassed the anæsthetist. For serious abdominal cases oxygen bubbling through ether, and the combination warmed proved very valuable. For patients who were very ill, and needed an amputation rapidly, nitrous oxide and oxygen were used with much success.

Spinal anæsthesia was rarely used. Patients at the front, who are already in a state of severe shock, do not stand well the fall of blood pressure which accompanies this.

Medical Cases.

Of these we hold quite a number, including pneumonia, bronchitis, nephritis, trench feet, trench fever, etc. Infectious and venereal cases are evacuated as soon as possible. *Nephritis* is said to be endemic in various parts of the line, but of this I have no knowledge; blood pressure observations are taken on these and allied cases. *Sinusitis* was not

infrequent as a result of nasal catarrh; some of these were transilluminated; but in no case was operation needed.

Alimentary Troubles.

Bismuth meal radiography has been performed recently on some gastric and bowel cases with splendid results.

Trench Feet.

This, although by many supposed to be due to a combination of wet and cold, can ensue in the presence of cold only, as the last few weeks of cold dry weather have shown. For these either the ordinary treatment of hot iodine baths (1 volume of tincture to 1,600 volumes of water) or the high frequency current has been adopted. I am sure no form of treatment has come up to the high frequency current for the relief of pain; relief usually comes after the second or third application—they get five minutes about every alternate night. Their average stay in hospital is six weeks. This is somewhat of an advance on the earlier days of the war, when men with trench feet were evacuated to England, and lost to their battalion for six months.

Trench Fever.

Cases of this are not infrequent; the cause is not known as yet, but thought possibly to be due to a spirochæte. It is characterized by pyrexia for three or four days, with pains at the back of the eyes and down the legs; then an afebrile interval for several days, followed by a relapse, in which the symptoms are, as a rule, not quite so severe. A second relapse not infrequently occurs. The treatment is purely symptomatic.

Asphyxiating Gas.

Fortunately we have had few cases of this, and they have only been of a mild character. Never in my life have I seen so distressing a sight, as I saw in another casualty clearing station, shortly after coming to the front, when 50 or 60 men were frothing freely at the mouth, and in the greatest distress.

The site of our Hospital is within easy reach of enemy gas, and several times we have had gas alarms, but so far none has come over the camp. All the unit and patients in hospital are provided with the latest form of gas masks.

Cerebro-spinal Meningitis.

We have fortunately been very free of this. We had one fulminating case in a patient who died immediately after admission, after an illness of only 24 hours' duration. The case was one of meningococcal septicæmia; in these cases hæmorrhage into the adrenals is recorded. I regret to say that they were not examined in our case.

P.U.O.

This stands for pyrexia of unknown origin. Although there are some who think it is a definite disease, personally I very much doubt it, and think that the pyrexia, in most cases, can be traced to sore throat or bowel infection, or to other causes, such as are seen in civil practice.

Pneumonia.

This has been of the pneumococcal lobar type, and has shown a low mortality, due presumably to

the patients being mostly young adults. One fatal case was accompanied by pericarditis.

Shell Shock.

We have had quite a number of cases of this, some accompanied by aphonia, some by deafness. Hypnosis was applied successfully by Staff-sergeant Bennett in the cases of aphonia particularly.

Typhoid and Para-typhoid.

Thanks to protective inoculation, cases of this were extremely rare.

I feel the article has not been complete without a tribute to the work of our nursing orderlies. Drawn from all ranks of life, they have shown an adaptability to nursing work which makes one prouder than ever of being Australian.

In conclusion, I am only expressing the feelings of the whole unit, when I say how intense is our admiration for the courage, unselfishness and endurance of the wounded, whether they be Australian, New Zealand or British.

Reviews.

PRACTICAL BACTERIOLOGY.

The handbook¹ of directions for a course of practical microbiology, prepared by the staff of the laboratory of Bacteriology, Hygiene and Pathology of the Michigan Agricultural College, is edited by Ward Giltner, Head of the Department. Ten years has been occupied in designing the scope of instruction for a suitable introduction to General Microbiology. The authors must be congratulated on the success that they have attained. Every student who has completed the full series of exercises will have gained such insight into the methods employed in bacteriological investigation, that he will be able to conduct any special research in a scientific manner. The authors disclaim any attempt to compile an exhaustive list of exercises, though they state that their aim has been to cover a wide range of activities upon each different subject. The manual endeavours to promote education in bacteriology. It does not give instructions for a few experiments to aid the student in obtaining a practical view of the matter treated and taught in lectures. Little supplementary knowledge will be needed by students who have done the exercises in this book on the subjects dealt with in the exercises. By his own observations and experiments the student will learn the fundamental principles of microbiology. Nowhere in this book is the student required to accept from authority what he is unable to prove to himself.

The contents are divided into three parts. The first part deals with morphological and cultural methods, and serves as an introduction to bacteriological technique. The second part comprises the exercises on the physiology of micro-organisms. The third part is subdivided into five portions dealing with the microbiology of air, of water and sewage, of soil, of the dairy, of plants and of animal diseases and immunity. In the first portion the work is divided into 53 exercises, each of which takes about three hours for its performance. The directions are explicit, and are stated upon a quantitative basis. Among the lessons are interspersed brief chapters on special topics; e.g., on sterilization, on gelatine, on agar, on cultures and on the microscope. References to recent literature are placed at the

¹ Laboratory Manual in General Microbiology, prepared by the Laboratory of Bacteriology, Hygiene and Pathology, Michigan Agricultural College. Edited by Ward Giltner, 1916. New York: John Wiley and Sons. London: Chapman and Hall, Ltd. Demi. Svo., pp. 418, with 73 figures. Price, 10s. 6d.

end of the exercises, many of which are based upon recent original investigations. In the second part 33 exercises are arranged to teach the physiology of microbes. The exercises deal with the small amount of food needed by bacteria, with the effect of anaerobic conditions, with the formation of acids from carbohydrates, with the use of organic acids as food by bacteria, with the necessity of nitrogen for growth, with the proteolytic digestion of gelatine, with the action of enzymes upon starch, with the presence of reducing enzymes, with the action of catalase and oxidase ferments, with activators for certain enzymes, with the action of concentrated solutions on bacteria, with the desiccation of bacteria, with the determination of the optimal, minimal and maximal temperature requirements of bacteria, with the effect of freezing upon sporing and non-sporing micro-organisms, with the determination of the thermal death-point of sporing and non-sporing microbes, with the action of moist and dry heat on bacteria, with the action of pasteurization of the growth of organisms, with the effect of reaction upon growth, with the influence of light upon micro-organisms, with the determination of the carbollic acid co-efficients of disinfectants, with the action of formaldehyde upon milk and with symbiosis. This list serves to show the type of lesson set forth in this manual. In part three the lessons form valuable accounts of the mode of examination for micro-organisms on air, water and sewage. The standard methods of examination, published by the American Public Health Association, are followed. The division treating of animal diseases and immunity, has exercises upon the preparation of a vaccine, the manufacture of a toxin and on the formation and standardization of tetanus antitoxin. The use of precipitins, agglutinins and hemolysins is taught with material prepared by the student.

The manual can be confidently recommended to any person desiring a course of instruction in bacteriology. It can be followed with ease. The instructions have no doubt been modified from year to year in the light of the experience gained with different students. In consequence they form models of what such exercises should be. For the medical man the course is not sufficiently specialized, but no medical man can hope to use bacteriological methods for investigation with success who has not learnt to control the methods of study in the way shown in these exercises.

GLAUCOMA.

For a clear, concise and common sense presentation of the subject of glaucoma¹ for the benefit of the general practitioner, Mr. R. H. Elliot's handbook of fifty-seven pages is altogether admirable. In this well-printed and illustrated booklet the medical man may in an hour or two read up, with all the interest of a novel, the anatomy, signs and symptoms, pathology and treatment of glaucoma. The author very correctly emphasizes the necessity of every medical man being able to recognize a case of acute glaucoma, and of being suspicious of chronic glaucoma, and he regards it as the doctor's duty to urge his patient to get expert advice with the least possible delay. For such an out-and-out advocate of operative treatment as the author is, the question of operative *versus* other treatment is discussed with commendable moderation. The practitioner, however, should know that, in the experience of many ophthalmic surgeons, chronic glaucomatous eyes are often kept well for many years by the use of miotics, and that disappointment and disaster are far from unknown after operation. As to the choice of operation, Elliot's trephining is still upon its trial; the world has not yet abandoned older and in some respects safer measures.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the De-

¹ Glaucoma: A Handbook for the General Practitioner, by Robert Henry Elliot, M.D., B.S., Lond., with six plates and other illustrations; 1917. London: H. K. Lewis & Co., Ltd.; Demy 8vo., pp. 60. Price, 3s. 6d. net.

partment of Public Health, New South Wales, during the week ending May 12, 1917:—

Disease.	Metropolitan District.		Hunter River District.		Rest of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Enteric Fever ..	8	0	2	1	13	0	23	1
Scarlatina ..	39	1	7	1	46	1	92	3
Diphtheria ..	66	4	4	0	102	6	172	10
C'bro-Sp'l Menin.	1	2	0	0	3	0	4	2
Poliomyelitis ..	0	0	0	0	1	1	1	1
*Pul. Tuberculosis	19	7	0	0	15	0	34	7

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

VICTORIA.

The following notifications have been received by the Board of Public Health, Victoria, during the week ending May 13, 1917:—

Disease.	Metropolitan.		Rest of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Diphtheria ..	56	3	73	1	129	4
Scarlatina ..	28	0	27	0	55	0
Enteric Fever ..	5	0	7	0	12	0
Pulmonary Tuberculosis	18	14	4	0	22	14
C'bro-Spinal Meningitis	1	—	5	—	6	—
Poliomyelitis ..	1	—	0	—	1	—

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, South Australia, during the fortnight ending May 5, 1917:—

Disease.	Adelaide.		Rest of State.		Totals.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Diphtheria ..	4	3	81	0	85	3
Pertussis ..	1	0	26	2	27	2
Pulmonary Tuberculosis	3	6	19	11	22	17
Enteric Fever ..	0	0	20	0	20	0
Scarlatina ..	3	0	9	0	12	0
Erysipelas ..	1	0	5	0	6	0
C'bro-Spinal Meningitis	0	2	4	0	4	2
Morbili ..	0	0	4	0	4	0
Puerperal Fever ..	0	0	0	1	0	1

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland during the week ending May 5, 1917:—

Disease.	No. of Cases.
Cerebro-Spinal Meningitis ..	6
Diphtheria ..	32
Erysipelas ..	2
Enteric Fever ..	7
Scarlatina ..	9
Pulmonary Tuberculosis ..	3
Malaria ..	8

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the week ending May 12, 1917:—

Disease.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Diphtheria ..	2	3	14	19
Pulmonary Tuberculosis	1	0	3	4
Enteric Fever ..	0	0	2	2
C'bro-Spinal Meningitis	0	0	1	1
Scarlatina ..	0	0	5	5

AUCKLAND.

The following notifications have been received by the District Health Officer, Auckland, New Zealand, during the month of April, 1917:—

Disease.	City.		Suburbs.		Country Districts.		Total. Cases.
	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.	
Scarlatina ..	4	12	76	—	—	—	92
Diphtheria ..	7	22	28	—	—	—	57
Enteric Fever ..	3	0	17	—	—	—	20
Pulmonary Tuberculosis	10	6	10	—	—	—	26
Septicæmia ..	3	4	0	—	—	—	7

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Re-Education Schools.

The Department of Defence recognized early in the war the extent of its obligation to the men who would return incapacitated from the front. Schemes were devised to give these men medical treatment, and the assistance of the medical profession was sought. At a later date the co-operation of experts in technical education was secured for the purpose of enabling the maimed to obtain suitable employment after they had derived as much benefit as possible from medical or surgical treatment. But, notwithstanding the recognition of the country's obligation and the endeavour to formulate adequate schemes for the purpose, the authorities have failed to achieve what can be achieved, because a properly equipped, complete orthopædic service has not been established. We have pointed out on many occasions that there should be a service under the direction of a responsible expert in orthopædic surgery, and that this service should be so organized that the wounded man would be placed under the most favourable conditions as soon after receiving his wounds as is practicable, and be kept under specialistic treatment until his incapacity has been reduced to a minimum. During the latter part of his treatment he should be trained in an associated institution to follow a calling at which he could become proficient, notwithstanding his incapacity. Up to the present there is but one establishment in Australia for the re-education of soldiers—The Brighton Society for the Re-adaptation of Soldiers—which is situated near Melbourne, and this establishment is supported by voluntary effort. A proposal has been made to institute a training school in connexion with the Orthopædic Department of the Randwick Hospital, but nothing definite has yet been done. This work of equipping men for suitable

callings has been developed extensively in France under the aegis of the *Fédération nationale pour l'assistance des Mutilés de la Guerre*. The re-education school in Paris of this Society is being conducted by Professor Amar, and much experimental work has been carried out by him for the purpose of devising new methods and new apparatus. We propose at some future date to publish some details of the working of the National Federation. The experience of Professor Amar is that 45% of the maimed soldiers can be fully re-educated and 10% can return to their former trades. His experience has taught him that not more than 20% of these men cannot be trained to any useful occupation. In England there are at present two workshops connected with institutions for maimed soldiers, where re-education is attacked as a practical problem. Crippled soldiers have an excellent school at Vernon, in Belgium, and there are similar institutions in Milan and other cities in Italy. We understand that the Germans are doing sound work in Heidelberg and Königsberg, and also in the neighbourhood of Berlin. The Austrians and Hungarians have left this obligation to the Red Cross organization, and a large school has been established in Spitsky's institution in Vienna.

In the absence of departmental aid, the work, as it is carried out in Brighton, Victoria, is excellent, but there can be no doubt that the Government should undertake it, in view of the fact that it is extravagant for any country to allow unemployment to spread beyond the irreducible minimum after a war. While it must be admitted that the development of a scheme to include the proper treatment and retraining of wounded soldiers is fraught with difficulties, it cannot be conceded that these difficulties are insurmountable. There are several competent men in the Commonwealth whose experience in orthopædic surgery would enable them to plan a comprehensive scheme. One of these men should be chosen, and he should be invited to submit the details of a scheme which, after its approval has been obtained, he would be required to carry into operation. He would be responsible for the proper conduct of the work in the several departments.

THE REGISTRATION OF OPTICIANS.

The Federal Committee of the British Medical Association in Australia, at its meeting held on April 25 and 26, 1917, determined that the registration of opticians as sight testers was detrimental to the interests of the public. The British Medical Association in Great Britain and the Ophthalmological Society of the United Kingdom arrived at the same decision several years ago. Various reasons have been put forward in support of this contention, and the majority of these reasons have been recognized by the public and by parliamentarians as valid and unanswerable. The eye is not a separate optical instrument which can be dealt with on mechanical principles. It is a living part of the human body, and is influenced by the various modifications of physiological activity of the body and by numerous diseases of that body. The person who attempts to correct physical defects by mechanical means without knowledge of the physiology of the body as a whole, and of the diseases which affect the body, subjects his patient to grave risks. Many diseases are manifested by ophthalmic symptoms, and at times failure of vision is the first sign of a serious disease. The optician is a person skilled in the manufacture of spectacles and trained to some extent in optics. It may be assumed that he is competent to determine the correction necessary to enable an individual with defects such as myopia, hypermetropia or astigmatism, to obtain full vision. But even in regard to physics it will be conceded that opticians acquire in their training merely superficial knowledge of optics, and are not masters of the science on which the mechanical part of the ophthalmologist's work depends. The registration of a man trained in this superficial manner as a person competent to test vision would create in the mind of the public a conception that it would be safe to consult the optician for any defect of vision. There are many diseases of the eye, like glaucoma, which give rise to defective vision. To prescribe spectacles for a person suffering from glaucoma without instituting the proper treatment for the condition, means to rob the individual of the last chance of retaining his vision. Similarly to give a person with Bright's disease glasses in the

vain attempt to improve his vision, may deprive him of his life.

The Bill before the Queensland Parliament in December last year may be dealt with again within a short time, and it is therefore necessary to emphasize its dangers before it has gone too far. The Bill does not propose to distinguish between competent spectacle makers and mere vendors of spectacles. Such a measure would be advantageous to the public. The opticians who are seeking this registration claim that they are competent to test vision. To do this with safety to the patient, it is essential that the person applying the tests must have at his disposal knowledge of the physiology of the whole human body, of the diseases which may affect the body, and of the pathology of these diseases, in addition to the knowledge of the optical laws which are concerned in the act of vision. The ignorant are apt to object to the claims of the members of the medical profession that they alone have the knowledge essential for the treatment of disease. It is, however, very rare for a person to spend five years or more in the serious study of medical sciences without completing the course by passing those examinations which are prescribed as essential for registration on the medical registers. There are no secrets in medicine, and knowledge acquired by medical practitioners is common knowledge. It is not claimed that every medical practitioner possesses complete knowledge of medical sciences. But every practitioner has had sufficient preliminary training to enable him to acquire knowledge, and it is his own fault if he fails in any special direction. It may also be conceded that the tests of competency are imperfect, but up to the present a better test than an examination has not been devised. We can, therefore, claim that the public would be subjected to unnecessary and grave danger if persons superficially trained in the science of optics and expert mechanics should be recognized by law as competent to test vision.

There is another matter to which the Federal Committee gave its attention in this connexion. It determined that in the event of a measure providing for the registration of opticians as sight testers becoming law, as is the case in Tasmania, medical

practitioners should not serve as members of the Board appointed for the purpose of carrying out the provision of the act. The members of the Tasmanian Branch of the British Medical Association do not assent to this view. They are of opinion that a medical practitioner who practises as an ophthalmic surgeon would be in a position to limit the danger of the measure to some extent, by exercising vigilance over the qualifications of persons seeking registration. The interests of the medical profession and those of the public are identical in this, as in other, respects, and it is reasonable to assume that a medical member of the board would be in a position to look after both.

ENTERIC FEVER AND SOIL CONTAMINATION.

A number of correspondents have written letters which have been published in this Journal, in protest against certain statements made in an article entitled "Enteric Fever and Soil Contamination." In this article it was pointed out that the discovery of typhoid bacilli in the soil or water would be regarded by a bacteriologist as a sign of recent infection. The Medical Officer of Health, informed of such a discovery, would endeavour to find a person from whom the bacilli were derived. These statements appear in the article as comments on the report of an eminent civil servant who feared an outbreak of enteric fever, during the sewerage of a large public institution "as a result of the disturbance of the soil germ-laden as the result of past, bad hygienic conditions."

Our correspondents have all pointed out an association in time between excavation of the sub-soil and outbreaks of enteric fever. They state that the infection must be due to bacilli in the soil, since all other sources of bacilli have been excluded in their examination of each outbreak. Dr. Booth-Clarkson has mentioned an epidemic in Pinetown, Natal, in which the infection was thought to have remained in the soil some twenty or twenty-five years on the site of a military hospital. The question whether the excavation of the soil is or is not the cause of the infection may be left on one side. Enteric fever is due to the *bacillus typhosus*. Up to the present no one has ever found typhoid bacilli in any soil which has not been experimentally contaminated with urine or faeces containing the organisms. The proof of the existence of any soils germ-laden with typhoid bacilli from past bad hygienic conditions, is missing. Bacteriologists have sought widely and carefully, but in vain, for soils containing typhoid bacilli in which an obvious source of the bacilli has not been present. But let us suppose that typhoid bacilli are found in the wet soil around the drainage pipes in an excavation. The question at issue is: How long have the bacilli been present? Mair found* that

typhoid bacilli can survive in natural soil in large numbers for about 20 days, and are still present after 80 days. He was unable to get any evidence that they multiply, and although he added enormous numbers of bacilli to the soil, the bacilli lessened in numbers until they died out. Dempster showed that while typhoid bacilli usually die out quickly, they may retain their vitality in dry soil up to the eighteenth day, and in moist soil to the forty-second day. In no case was any multiplication observed in the soil. Grancher and Deschamps, Almquist and Robertson obtained similar results. Firth and Horrocks found that the bacilli did not live longer than 74 days in sewage polluted soils. In brief, all the available literature known to us shows that the bacilli cannot be recovered from a soil later than three months from their addition to it. A belief in the existence of typhoid bacilli in the soil for years is not supported by any bacteriological evidence whatever.

EPIDEMIC POLIOMYELITIS.

Our knowledge of the pathology and epidemiology of infective poliomyelitis has been much advanced by the experimental labours and stimulating suggestions of Simon Flexner, Director of the Rockefeller Institute of Medical Research, New York. In some reports recently published¹ in collaboration with H. L. Amoss, the effects of the intraspinal injection of various sera have been examined in relation to the infection of the brain and cord with the virus of the disease, and in regard to the passage of immune bodies from the blood to the spinal fluid. Poliomyelitis may be produced experimentally in monkeys by intra-cerebral, intra-nasal, intra-peritoneal, subcutaneous and intravenous inoculation with the virus. Infection invariably follows the intra-cerebral inoculation of a suitable virus, but the chance of infection is less through the other portals in the order in which they are enumerated above. There is some evidence that human poliomyelitis follows the infection of the upper respiratory region of the nose. The virus may travel to the brain either through the blood stream or by the lymphatic channels along the olfactory nerves. As intravenous injection of the virus does not readily produce the disease in monkeys, and as intra-nasal infection is frequently effective in causing the experimental poliomyelitis, the lymphatic channels seem the more probable paths along which the virus travels. The infection does not pass easily from the blood stream through the walls of the choroid plexus, or of the pial lymphatics, to the brain or spinal cord. Any meningeal disturbance which affects the vitality of the tissues composing the membranes covering the central nervous system, diminishes the resistance to the virus of poliomyelitis in the blood. The injection of normal monkey serum and of normal horse serum into the thecal canal promotes infection by the virus introduced into the blood stream. The

¹ Journ. Exper. Medicine, vol. XXV., p. 525 and 490, April, 1917.

introduction of normal salt solution or Locke's fluid has a similar effect in lowering the resistance to the passage of the infection. Even a tapping of the spinal canal with withdrawal of the fluid and its subsequent re-injection increases the risk of infection after intravenous inoculation. The authors found only one fluid, immune serum, which did not heighten the danger of infection through damage of the pial structures. Immune serum is also capable of annulling the injurious action of sera and other irritants on the elements of the choroid plexus.

Recovery from poliomyelitis is accompanied by an active immunization of the blood serum. The serum possesses the power of neutralizing the toxicity of the virus of the disease and of exerting a therapeutic influence on the course of the natural ailment. Human cerebro-spinal fluid taken early or late in an attack of epidemic poliomyelitis, has no action in antagonizing the virus, though the blood from the same individual may contain protective substances. As early as the sixth day of the illness active immunization may be demonstrated. In monkeys, in which a passive immunity has been produced, the passage of the immune bodies into the cerebro-spinal fluid from the blood may be brought about by the intrathecal injection of sterile horse serum. The serum alters the permeability of the walls of the blood vessels, so that immune substances enter the thecal fluid. The time during which the passage is effected is limited to the period of more intense aseptic meningitis. It has already been shown for monkeys that the intraspinal injection of immune serum exercises a curative influence upon poliomyelitis. It appears from the investigations cited previously that the use of injections of horse serum has no therapeutic action beyond aiding the passage of immune substances for a short time through the choroid plexus and the pial lymphatics. The employment of injections of immune serum into the spinal canal is more likely to be serviceable in the treatment of the disease.

The opportunity given to the medical profession in New York and other parts of the eastern States of America of studying the epidemic disease commonly known as infantile paralysis, during the summer of 1916, has not been allowed to pass unused. During the course of this epidemic there were 24,000 cases notified to the health authorities. There is always a danger that the energies of the medical profession may be completely absorbed in the attempt merely to apply treatment when an unusually large and sudden epidemic breaks out. The more important work of gaining knowledge of the disease is consequently often left undone, or but imperfectly done. That our American colleagues have recognized the value of the opportunity is evidenced by the number of important contributions on anterior poliomyelitis which have appeared in the medical press since midsummer, 1916. One of the best of the summaries that has yet appeared is a communication made by Dr. Haven Emerson to

The Johns Hopkins Medical Society.¹ In the course of this communication, the astute author calls attention to the objection to the use of the term "abortive" case. He claims that the diagnosis can be made in the absence of paralysis, and that it should be recognized that infection with the poliomyelitis virus need not be followed by paralysis. The importance of appreciating that children may have the disease without any signs of paralysis becomes obvious when it is remembered that these children spread the disease as freely as those with all the classical symptoms. Another clinical observation of value from the point of view of diagnosis and prophylaxis is connected with the cerebro-spinal fluid. The fluid is usually clear on macroscopic inspection. When held in the sunlight, the fluid sparkles from the presence of suspended cells, which are not numerous enough to cause turbidity. In the early stages, the cells may be distinctly increased in number, before there is any evidence of globulin. Later the only pathological sign may be a globulin reaction. The health authorities needed all the information that was available to guide them in their endeavour to cope with the epidemic. The task of tracing the infection back to its source was difficult, because so little was known in regard to the means of spread of the infection. A careful investigation revealed that a high external temperature and atmospheric humidity have little, if anything, to do with the spread. The infection has been shown to pass from child to child, either directly or indirectly through the agency of some hitherto undiscovered vector. Dr. Emerson suggests that fruit and other food that is handled before it is eaten, may be a means of conveyance, while he is not convinced that milk acts in this rôle. The epidemiological work was greatly favoured by the ready response of the community to a request that every suspected case should be reported. In this way more cases were reported than actually existed, and the health authorities were enabled to investigate practically every true case, after a careful diagnosis had been made. The ease with which preventive measures may be carried out is illustrated by the fact that in the various institutions harbouring children, only two out of a total of approximately 28,000 became infected. All these institutions were placed in quarantine and the public were kept at arm's length until the danger of spread was over. The patients were isolated in screened premises, and the period of isolation was arbitrarily fixed at six weeks. The associates of patients were kept under control as far as was practicable, and were excluded from school. The defect in the defence against the spread of infection lies in the fact that unrecognized carriers of the virus are not dealt with. Dr. Emerson is of opinion that the incubation period is short, not exceeding two weeks. Dr. Fox, writing in a recent issue, is able to show that in one case it was not less than fourteen days, and was probably some days longer. The diagnosis can be made with cer-

¹ Bulletin of the Johns Hopkins Hospital, April, 1917.

tainty by the injection of cerebro-spinal fluid or mucus from the nasal or faucial cavities into monkeys. He states that there is no specific treatment of established value in poliomyelitis. Lumbar puncture offers relief during the attack. He has assured himself of the advisability of placing the affected muscles at complete rest for a considerable time. Massage, exercise and electrical treatment are liable to do more harm than good until the acute stage has passed. He also insists on the disinfection of all body discharges, as a routine procedure.

THE INVASION OF SPINAL FLUID BY MENINGOCOCCI.

Meningococci are present in the cerebro-spinal fluids of most patients suffering from cerebro-spinal meningitis. Some of the diplococci lie free in the liquid, but others are contained within the cytoplasm of the leucocytes which appear abundantly in the spinal fluid during the course of the disease. The path by which the micro-organisms reach the meninges, has not been ascertained. Some have assumed that the microbes pass directly through the tissues from the naso-pharynx to the brain by the cribiform plate of the ethmoid bone. Others have suggested that the meningococci travel along the lymphatic channels, surrounding the olfactory nerves, into the subdural and sub-arachnoid spaces. No one has, however, seen the meningococci in the coverings of the olfactory nerves upon microscopical examination of these parts. Others again have supposed that the germs are carried in the blood stream to the spinal and cerebral regions, where they pass from the blood vessels to the rachidian fluid. The membranes enclosing the spinal fluids offer an obstacle to the passage of bacteria, since it is doubtful if the free organisms could penetrate the living arachnoid and dural coverings. The existence of a filterable precursor of the meningococcus has been hypothesized to lessen this difficulty. Leucocytes are able to pass through these membranes, so that it has been suggested that these cells ingest the meningococci and convey these microbes to the spinal fluid. A study of the phagocytic action of polynuclear corpuscles has been carried out by Drs. Cresswell Shearer and H. Warren Crowe.¹ These investigators have shown that the meningococcus may remain alive within the leucocytes for 24, or 48, or even 60 hours. Their experiments depend on the use of a culture medium, made with defibrinated bullock's blood and glucose on a trypsin agar basis and called "chocolate medium" from its colour, and on the toxic action of normal salt solution upon meningococci. The authors found that 20 or 30 meningococci would produce growth on "chocolate medium," while at least 10,000,000 meningococci were needed to give rise to colonies on other media. By washing with physiological saline solution the deposits of living leucocytes obtained from the cerebro-spinal fluids of patients suffering from cerebro-spinal meningitis, all the free meningococci were killed, yet the crushed leucocytes yielded a profuse

growth. The leucocytes were examined with the microscope on a warm stage when they exhibited ameboid movements. On attempting to stain them with trypan blue the leucocytes did not take up the stain. The authors conclude that the leucocytes are alive, and that they contain meningococci which are viable and capable of reproduction.

Additional observations were made by the opsonic method in support of these conclusions. Leucocytes do not take up the diplococci of a recently isolated culture of meningococci in the presence of normal serum. The leucocytes become gorged with organisms, if an immune serum be used to sensitize the emulsion of the diplococci. It is found that if the gorged leucocytes lie in normal saline solution for 24 hours or even longer, abundant growth is produced on planting them upon chocolate medium. The leucocytes remain alive in the saline fluid, but do not destroy the viability of the meningococci. If a strain of meningococci be kept alive with repeated sub-culture in the laboratory, it will become altered, so that it is taken up in the presence of normal serum. Under these conditions the leucocytes destroy the meningococci, and implantation of the leucocytes washed in normal salt solution, yields no growth upon "chocolate medium."

The authors have been led by these observations to investigate the throats of "carriers," and have found that the further removed an organism is from the patient in whom it caused disease, either in time or in number of passages from throat to throat, the more susceptible does it become to ingestion by phagocytes. In this fact the authors see the explanation of the absence of direct infection from the patient suffering from cerebro-spinal meningitis. The organisms are not taken up by leucocytes, and infection of the meninges does not eventuate. The majority of "carriers" do not infect, since the organisms in their throats are readily digested by phagocytes. In some "carriers," however, the organisms have become capable of undergoing ingestion without losing their viability. Thus they serve as the vector from the naso-pharynx to the spinal fluid.

It is with deep regret that we learn of the death of Dr. C. E. Todd, of Adelaide, which took place on May 23, 1917.

Captain R. E. Nowland informs us that through the inadvertent omission of a sentence from his article on the treatment of cerebro-spinal meningitis (see *The Medical Journal of Australia*, December 9, 1917, p. 489, *et. seq.*) the sense of one paragraph has been altered. Notwithstanding the frequent assertions to the contrary, he is convinced from his observations that repeated lumbar puncture without the injection of serum does not yield as satisfactory results as can be obtained from the use of serum.

We have been requested by the Honorary Secretary of the New South Wales Branch of the British Medical Association to state that, in forwarding for publication the list of members of that Branch, which appeared in *The Medical Journal of Australia*, of February 17, 1917, the name of Dr. E. M. Ramsden, now of Bathurst, was, by inadvertence, omitted.

¹ *Proc. Roy. Soc., London, B.*, Vol. LXXXIX., pp. 422 and 440, March, 1917.

Abstracts from Current Medical Literature.

DERMATOLOGY.

(164) Eczematoid Ringworm of the Hands, Feet and Groin.

Macleod (*Practitioner*, February, 1917) states that the majority of these cases of eczematoid ringworm of the hands and feet are due to the *epidermophyton inguinale* of Sabouraud, which is also the causative agent in ringworm of the groin. There has been a marked increase in the number of cases amongst soldiers who have been in Gallipoli and the south-eastern theatre of war. The sites of predilection of this fungus are the moist, warm, intertriginous parts of the body, such as the groin, extremities, axillae, umbilical fold, and beneath the breasts in stout women. The fungus can be readily demonstrated by placing a detached scale with the deeper side uppermost upon a glass slide, to which are added a few drops of *liquor potassae*. This should be gently heated, and allowed to stand for a quarter of an hour, and then examined under the high power of the microscope. When the disease affects the hands and feet, the clinical picture varies, but the essential lesion is a pinhead sized, deeply seated vesicle, embedded in the epidermis, and resembling a sago grain. These vesicles are sometimes grouped, and may coalesce to form blebs. On the feet, the fungus may produce coarse scales and horny thickenings, or between the toes may give rise to a thickened white soddened skin somewhat like parchment. Not infrequently the nails are affected, and become discoloured, thickened, and brittle, and sometimes raised and turned up at the free border. In the vesicular stage itching is usually a prominent subjective symptom. Although the condition is dormant in the winter months, it recurs with the approach of warm weather. When the affection is acute or purulent, boric compresses should be applied, followed by a dusting powder consisting of salicylic acid, one part, boric acid four parts, and zinc oxide four parts. Later, a curative ointment should be applied twice daily, such as oxidized pyrogallol 1 gramme, glycerine of starch 8 c.cm., and soft paraffin to 30 c.cm. The boots should be dusted inside with the powder, and occasionally swabbed with a one in twenty solution of lysol, in order that the feet may not again be reinfected.

(165) Bromide Eruption.

A case of bromide eruption occurring in a baby 20 months old, after the administration of bromide of sodium, given in doses of 0.06 gm. every three hours over a period of several weeks, is reported by M. Scholtz (*Urologic and Cutaneous Review*, April, 1917). The

eruption, which was symmetrical, affected the face, arms, forearms, legs, and thighs, whilst the remainder of the body was entirely free. The lesions were more numerous on the face, but were larger on the legs, with a tendency to become confluent in places. They were all discrete, sharply defined, flat, umbilicated, of dusky red colour, and of boggy, semi-solid consistence, with no tendency to spread at the periphery, or to produce secretion, ulceration, or scars. The eruption still continued to appear long after the bromide had been discontinued, thus exhibiting a feature which is frequently seen after the administration of this drug. The author states that the lesions on the face simulated a severe type of variola, previous to pustulation, those on the upper and lower limbs erythema multiforme, whilst the confluent patches were suggestive of blastomycosis. All the lesions could be regarded as tertiary syphilides, but for the fact that each of these clinical forms lacked some of the necessary and constant features. Such a distribution, and variation of signs should always suggest a drug eruption, and enquiries from the parents would probably elicit the information that the child had been given drugs recently.

(166) Sclerodactylia with Calcareous Concretions.

George Manghill (*Journ. Cutan. Diseases*, February, 1917) reports a case of sclerodactylia with calcareous concretions, in a female, *aet.* 27 years. The first manifestations of the disease appeared ten years ago, with numbness and sluggish circulation in the fingers and hands. This was later followed by stiffness of the fingers, together with the presence in them of hard masses, some of which broke down and discharged gritty calcareous concretions, which varied in size from a pinhead to a small pea. They were white in colour, rather soft and brittle, evidently composed very largely of carbonates, as marked effervescence occurred on the addition of nitric acid. Urates and uric acid were absent, showing that the concretions were not gouty in nature. Other regions in scleroderma, *viz.*, the elbows, neck, knee, hip, buttocks, etc., have been described to be similarly affected with calcareous concretions. Although many patients with scleroderma give a positive Wassermann reaction, in the present case neither the patient nor her husband gave any history, or showed any signs of syphilis, and the reaction of their blood was negative. The Röntgen rays should prove a valuable aid in the diagnosis of these deposits.

(167) Roentgen Diagnosis of Gastro-colic and Duodeno-colic Fistulae.

M. P. Burnham reports two cases in which gastro-colic and duodeno-colic fistulae were diagnosed radiographically by an opaque meal and the findings verified by operation (*Americ. Journ. Roentg.*, April, 1917). He

points out the extreme difficulty in diagnosing such conditions clinically, and briefly touches upon the symptoms and the underlying causative lesions. In the first case, one of gastro-colic fistula, the findings were as follows: Extreme rapidity in emptying and the characteristic deformity of malignant disease of the body of the stomach. Six hours after an irregular mass due to barium could be seen at the proximal limb of the splenic flexure, communicating by three channels with the stomach, and the stomach was found to contain a definite amount of the opaque meal. This meal had obviously passed back by the fistula, but was not an actual residue, owing to the rapidity with which the meal was seen to pass out of the stomach. An opaque enema was then administered, and the enema proceeded normally until the proximal limb of the splenic flexure was reached, when the progress was arrested. On examining the patient with X-rays the fistula and the outline of the stomach could definitely be displayed, owing to the barium passing through the fistula of the stomach. At the operation the condition was verified, a large neoplastic mass being found involving the stomach and splenic flexure. In the second case, one of duodeno-colic fistula, there were no definite clinical symptoms of this condition. On the administration of the opaque meal, the stomach was seen to fill normally, there being marked irregularity in the contour of the *pars pylorica*. Fifteen minutes after the administration, a Roentgenogram showed the passage of the opaque meal from a point in the descending duodenum into the hepatic flexure, and thence into the caecum. Six hours later the stomach was empty and the head of the barium column was in the hepatic flexure. Twenty-four hours after the meal the bulk of the meal had been evacuated, but the ileum contained a definite residue, probably due to the barium returning through it from the duodeno-colic fistula. An opaque enema passed normally up to the hepatic flexure, and a fistulous track leading into the duodenum was seen. This was verified at the operation, the underlying cause being an annular carcinoma in the distal limb of the hepatic flexure.

BIOLOGICAL CHEMISTRY.

(168) Estimation of Calcium in Blood and Milk.

H. Lyman (*Journ. Biol. Chemistry*, March, 1917) has devised a rapid method for estimating the amount of calcium in small quantities of blood and milk by the measurement in a nephelometer of the degree of turbidity produced by precipitation of the lime as calcium oxalate. Five cubic centimetres of blood or of diluted milk are freed from proteins by precipitation with trichloroacetic acid. An aliquot part of the filtrate is treated with

ammonium oxalate, oxalic acid and sodium acetate. The precipitated oxalate of lime is washed in a centrifuge and dissolved in nitric acid. The calcium is precipitated with an ammonium stearate reagent under standardized conditions. The turbidity of the resulting liquor is compared in a nephelometer with the cloud produced under similar conditions with a suspension of calcium oxalate of known strength. Full details are given of the preparation of the reagents and of the technical details of the analysis. An account is given of the method employed to demonstrate the accuracy of the new method, by which four determinations can be made in two hours.

(169) Digestion of Clotted Milk.

J. T. Leary and S. H. Sheir have studied the rate of digestion of clotted and unclotted milk in the stomach (*Journ. Biol. Chemistry*, January, 1917). Previous investigators had examined the digestion of milk, coagulated by rennin, as compared with milk in which clotting by rennin was hindered by the addition of sodium oxalate. They had concluded that gastric digestion was not retarded by clotting of the milk. The authors have measured the rate of gastric digestion by coagulating the proteins of the digested milk by heating it with a concentrated solution of sodium chloride. The amount of nitrogen in the precipitate and in the filtrate have been estimated by Kjeldahl's process. The quantity of amino-acids in the filtrate was determined by a Sørensen titration. In the first series milk was digested with scale pepsin with the addition of sodium oxalate and the rate of digestion compared with that of milk containing no sodium oxalate. The peptolytic action was retarded in the presence of sodium oxalate. In the second series boiled and unboiled milks were compared under the same conditions. The retarded digestion after the addition of sodium oxalate was pronounced. The digestion of boiled milk was somewhat more rapid than that of unboiled milk. A third series was arranged in which the pepsin and acid were added in a different order, so that a clot of casein was formed in one sample but not in the control. Digestion was more advanced when no clot formed in the milk. The authors conclude that the formation of a clot of casein hinders the digestion of the protein by pepsin.

(170) The Addition of Lime Water to Milk.

A. W. Bosworth and H. I. Bowditch have determined the chemical changes produced by the addition of lime water to cow's milk (*Journ. Biol. Chemistry*, January, 1917). Although the addition of lime water to cow's milk has been long practised for the feeding of infants, no study has been made previously of the chemical changes produced in the milk. A complete analysis was made of the untreated milk. A portion was filtered through porcelain, whereby the soluble and insoluble constituents were separated from each

other. Analyses were then made of the constituents of the soluble and insoluble portions. Milk was then mixed with different proportions of lime water. The mixtures were filtered through porcelain and analyses made of the soluble and insoluble constituents. The analysis showed that the addition of lime water results in the precipitation of much calcium phosphate. Milk normally contains some insoluble dicalcium phosphate. By the addition of lime water to the extent of 50%, about one half of the soluble calcium phosphate is thrown out of solution. Much of the citric acid is also precipitated. The addition of lime water brings the reaction of the milk nearer to the neutral point. The soluble alkali of the milk is removed in the formation of the insoluble phosphate of lime. The authors point out that, when cow's milk is treated with lime water and diluted with water to twice its original volume, the soluble calcium phosphate is reduced to less than that present in human milk.

(171) Adenoma Formation After Feeding with Lanolin.

Yutaka Kon has succeeded in producing the formation of adenomata in the stomachs of five out of nine rabbits, fed over one hundred and eighty-five days with lanolin (*Journ. Med. Research*, January, 1917). The rabbits received five grammes of lanolin daily. There is an accumulation of anisotropic lipid substance in the tunica propria of the mucous membrane of the pyloric region. This is followed by extension, convolution and branching of the glands accompanied by a growth of inter-glandular connective tissue. The increase was such that the thickness of the mucous membrane was augmented tenfold. The growth of glandular tissue was limited in all cases by the *muscularis mucosa*, and did not extend into the submucous layer. The glandular growth did not invade the blood-vessels or lymph channels. No metastases were observed. Rabbits fed over seventy-five days showed the characteristic atherosclerosis of the intima of the aorta. Those fed over one hundred days showed similar changes in the aortic and pulmonary valvular segments.

(172) Estimation of Ammonia in the Urine.

O. Folin and R. D. Bell describe a new method of estimating ammonia in the urine by direct Nesslerization (*Journ. Biol. Chemistry*, March, 1917). They employ a synthetic mineral, an "aluminium silicate," sold as "permutoit." This is made in America on a large scale for the softening of hard waters. The reagent is a clean, moderately fine, insoluble powder, which gives off no dust or turbid material to water, and which settles in the course of a few seconds in the same way as sand in sea water. The powder takes up ammonia readily from urine and solutions of ammonia. The ammonia can be completely separated

by decantation of the superfluid after fixation of the ammonia in the zeolite. The ammonia can be removed from the powder by treatment with sodium hydroxide and estimated by comparison with a standard solution according to Nessler's method. The powder can be used repeatedly for taking up ammonia, as it does not lose this power by being used. As many as eight determinations have been made with one quantity of 2 gm. without any loss of efficiency. A full account is given of the details of the method.

(173) The Composition of Human Milk.

F. S. Hammett (*Journ. Biol. Chemistry*, March, 1917) has examined the variations in the composition of human milk during the first eleven days after parturition. The milk has been collected by the breast pump at the same hour on the third, fifth, seventh, ninth and eleventh days after parturition from eight women. The total nitrogen, fat and lactose have been estimated in each sample. The total nitrogen was measured by the microchemical modification of Kjeldahl's method, devised by Folin and Farmer. The fat was estimated by Meig's process. The lactose was determined in the filtrate, free from proteins, by titration with Fehling's solution. The protein figure is sometimes high on the third day, being over 5% in two samples and with an average value of 3.5%. During the remaining period the samples have less than 2% protein. The protein diminishes during the period that has been investigated. The figures for fat show much variation. The concentration of fat ranges from 1.9% to 5.8%. The amount of lactose varies considerably during the early days of lactation, but the range of variation diminished greatly by the eleventh day. The author believes that his results show that any increase or diminution in the quantity of lactose is accompanied by a change in the opposite direction in the amounts of fat and protein.

(174) Calcium in the Cerebro-Spinal Fluid.

J. O. Halverson and O. Bergeim have estimated the amount of calcium in 29 samples of human spinal fluid removed by lumbar puncture (*Journ. Biol. Chemistry*, March, 1917). The majority of samples of the fluid were taken from patients suffering from syphilis of the nervous system. In some of the patients fluid has been repeatedly withdrawn from the thecal canal. The content of calcium in the cerebro-spinal fluid of adults has been found to be very constant in amount, the quantity bring about 5.0 mg. in 100 c.cm. fluid. This is approximately half the amount present in the plasma of the blood. The range of variation in the cerebro-spinal fluid does not amount to more than 0.3 mg. No alteration in the quantity of calcium present has been noted in patients with syphilis of the nervous system. Repeated tapplings by lumbar puncture have no influence on the concentration of calcium in the cerebro-spinal fluid.

RUSSIAN DOCTORS AND THE 1905 REVOLUTION.

While the political position in Russia is becoming more and more complicated, and the attitude of the various sections and classes is becoming more and more confused, the man who enquires of the Russian for an explanation, receives the reply: You do not understand; you cannot understand. Through a long series of years the masses have been kept under an iron curb, have been driven hither and thither at the will of the government, and have been crushed under the pitiless heel of the autocrat and his rabble. The masses have made desperate attempts to free themselves from the heavy load of ruthless oppression, but each attempt has been met by an inhuman reply, and has failed after a heavy price had been paid for it. The emancipation from this cruel yoke has come at an hour when the great Russian Empire was engaged in a struggle of gigantic significance. But the masses have had no opportunity of knowing what Russia was fighting for. The peasant and the industrial worker has been brought up to regard imprisonment, exile and warfare as inevitable events of life. Dazed by the effect of the success of the present revolution and by the overthrow of the most ghastly oligarchy imaginable, the individual must surely regard those in authority with suspicion, and must fear to accept assurances and promises, even if they are given by the enemies of the former rulers. In addition, the unexpected riddance of all that was hateful would naturally impel the people to regard international matters as no affair of concern to them, and to resist endeavours to force them to participate in a war, while the revolution is still ringing in their ears. We cannot understand, probably because we have never experienced anything like the lot of the Russian proletariat during the past fifty years. Perhaps the attitude of the medical profession during the revolution of 1905 may help to make us understand a little better.

In October, 1905, after the members of the medical profession had been marked out for special treatment by the paid hooligans of the Government, because of the sympathy the doctors had shown openly for the oppressed, a general strike was declared. The doctors regarded this outbreak on the part of the masses as a signal for a political movement on their part. A monster meeting of medical practitioners took place in Petrograd on October 27, for the purpose of determining how far the medical profession should participate in the general strike. It was then resolved that the doctors would stand by the masses in its struggle against the Government. The doctors determined to continue treating the poor in hospitals and other institutions, but refused to extend medical attendance to anyone in Governmental service who took up arms against the movement to attain freedom, and especially to exclude those who had had anything to do with the killing of the revolutionaries. All relations with the medical departments of the Government were broken off, and the medical staff of the hospitals agreed to ignore the dictates of the Governmental Boards of the institutions; they would merely attend to poor patients in these institutions. They further determined to organize an active obstructive policy directed against the official rule, by joining the workmen's committees. All steps were taken after consultation with the central strike committee. On the following day a second monster meeting of doctors took place in Moscow, and similar resolutions were passed unanimously. A third meeting took place on October 30. At this meeting representatives of all the Russian medical societies were present, and a definite plan of campaign was adopted. The directors of the bacteriological and pathological institutions in Moscow joined in the movement, and nominated delegates to serve on the general strike committees. So thoroughly did the doctors enter upon the spirit of the revolution. As is well known, the Czar issued on the 31st the celebrated manifesto, proclaiming a definite constitution and a fictitious decree of freedom for the masses. During the course of the afternoon the committee declared the strike at an end, and all the workers returned to work in high spirits. The jubilation did not last long. The despots, General Trepow, General Bogdanowicz and Governor Pobledonozzew, had worked out a diabolical plan in

Petrograd in the shape of a counter-revolution. The Governmental officials, the leaders of the clerical party and the municipal authorities of Moscow secured the assistance of the scum of the population for the ostensible purpose of celebrating the constitutional reform. This rabble marched through the streets with banners bearing the portrait of the Czar, pictures of the saints, etc., and forthwith proceeded to exterminate the "sedition mongers," and the "enemies of the Father." They were given unlimited quantities of vodka and some money. As the result of this alcoholic "patriotism," Russia was weltering in the blood of her workers within a fortnight. No words can describe adequately the depths to which these inhuman monsters sunk in their acts of brutality. The students of the universities were apparently the picked "game" for their onslaughts. Many medical practitioners were shot down or murdered in cold blood, while others were attacked with the utmost savagery. Some medical students in Moscow were literally torn limb from limb, and others were thrown into the river and drowned. The cold-blooded murder of a veterinary surgeon, named Baumann, a prominent social democrat, determined a mass protest which took place at his funeral. During the latter part of November the fuddled orgies of the hirelings died down and a period of quiet supervened. The interval was utilized by all ranks of society for the immediate organization of trade unions and professional societies. Even the highly salaried Government officials formed associations for their protection and organization. In this movement the *Zemstvo* doctors took a prominent part in assisting the peasant classes to follow the example of the more intelligent classes. The people had begun to doubt the sincerity of the promises, when official "rejoicings" were accompanied by callous brutality. The truth began to dawn on everyone when the Duma failed to take the actual government of the country into its hands. The feverish preparation for any eventuality on the part of all sections of the community did not tend to restore confidence in the governing persons, and before December was many days old, it was clear to all thinking persons that nothing less than a miracle could save Russia from a real revolution. The doctors realized this betimes, and steps were taken to ameliorate the lot of any who might suffer bodily ill in the coming conflict. The executive of the Union of the Russian Medical Societies organized a medical service for the treatment of casualties and had mobile ambulance corps ready before they were actually required. On December 19, 1905, an official open-air religious service was held by the followers of the autocracy in Kreml, to celebrate the Czar's birthday, and it was feared that hostilities might break out between the opposing parties. On this occasion seven ambulance corps, consisting of one or two medical men, a small number of nurses and a round half of a dozen stretcher-bearers, were stationed at convenient points in case of need. It is probable that the fact that the masses were armed prevented the paid dependents of the Czar from assaulting the former. Notwithstanding this unexpected development, the ambulance corps were kept in readiness night and day, until on December 22, the anticipated struggle broke out. Petrograd, Moscow, and other large cities suddenly became the sites of a bloody warfare. In the main thoroughfares the Government placed machine guns at points of vantage. Church towers and public buildings were used by troops in order that shot and shell might inflict the maximum amount of damage on the revolting people. The onslaught was rapid and determined, and hundreds fell victims to the machine guns and rifles of the military. From the first the people were hopelessly overpowered, and their attacks made but little impression on their better equipped antagonists. The ambulance corps proved invaluable at this stage. There were 24 stations and 9 mobile corps. The personnel of the corps was recruited from the ranks of male and female students of all faculties of the universities. The whole organization was voluntary and unsalaried. These brave people faced danger with calm and indifference. The dead and the wounded were fetched in, notwithstanding the heavy fire of the reactionaries. First-aid was rapidly accorded, and the wounded were then transferred to hospitals or private houses which had been prepared for the purpose. The medical profession had done its work well, and notwith-

standing the large number of wounded, the medical care was ample and skilled. Then began one of those dark acts which inevitably seal the doom of any sect or nation. In Moscow the Governor-General declared the action of the medical profession and of those associated with the ambulance work an act of mutiny. Orders were given to direct fire on all establishments bearing the Red Cross. Stretcher-bearers, doctors and nurses wearing the red cross armlet were picked out in the street and shot down. As soon as it was ascertained in which room in a private house wounded were receiving surgical attention, that part of the dwelling was bombarded with heavy projectiles. The story of the murder of a lecturer in psychiatry at the University of Moscow, Dr. Victor Worobiew, on December 30, illustrates the depths to which the officials in authority had sunk. This peaceful citizen had been called to render assistance to a wounded man in a neighbouring house. On his return he noticed that the soldiers were aiming directly at him. He held up his hands to show them that he was unarmed, but this did not avail him. By mere chance he succeeded in reaching his house untouched. Almost immediately on his return a detachment of soldiers surrounded the house, and some forced their way in. At their head was a police inspector. This man maintained that the house was being used as a Red Cross station. Worobiew denied it. He then insisted that Worobiew was sympathetic to the revolutionaries. Worobiew denied this too, and stated that he extended his duty as doctor to all who needed his aid. The third complaint was that Worobiew possessed weapons. Worobiew stated that he had in his possession a revolver, and added that he had a licence for this from the city council. He proceeded to fetch the revolver and the licence when he was shot in the back of the head. He died four hours later. The police inspector turned his revolver towards Worobiew's wife, when she uttered a cry of grief on seeing her husband fall, and threatened to shoot her too, if she opened her mouth again. Later the occurrence was reported to the legal authorities, and after some delay the police inspector was sentenced to imprisonment. He was, however, liberated after a few days on the order from Petrograd.

After the revolution had failed, as it was bound to, the Government began a campaign of arrests. Thousands were seized by the police and were thrown into gaol, prior to being sent to the northern provinces of Siberia. The medical profession suffered from this act of injustice, as well as from every other. Many a young practitioner had his career cut short during this after period of the revolution. For deportation to some of the penal establishments in the north or in Asia meant a few years of suffering and shame, and a welcome end. The hygienic conditions of these penal establishments will form the subject of the next article of this series.

Naval and Military.

The 302nd, 303rd and 304th lists of casualties sustained by the Australian forces abroad have been issued on May 23, May 27 and May 28, 1917, respectively. These three lists contain the names of 2,659 officers, nurses, chaplains and men. The number of those who have lost their lives on active service is 692, and of those wounded is 1,329. Under the latter list there is an entry: Captain P. E. Voss (severely, previously reported wounded, second occasion), and another entry: Captain A. E. Cullen.

The Secretary for Defence announced on May 28, 1917, that the number of Australian casualties for all ranks from the beginning of the war until May 21, 1917, were as follows:

Dead	24,106
Wounded (exclusive of those who have returned to the trenches)	31,585
Missing	5,102
Total	60,793

In a recent issue of the *London Gazette*, Colonel R. E. Roth, D.S.O., V.D., and Major H. L. St. V. Welch have been mentioned in Sir Douglas Haig's dispatches for distinguished and gallant services and devotion to duty.

Captain Douglas Jamieson, M.C., has been mentioned in the dispatches of the Commander-in-Chief in Egypt for conspicuous gallantry in the field during the operations in Palestine.

The following announcement of appointments, etc., to the Australian Imperial Force, Australian Naval and Military Expeditionary Force, and Australian Military Forces is published in the *Commonwealth Gazette* of May 24, 1917:—

Australian Imperial Force.

To be Major—

Honorary Major W. F. Simmons, Australian Army Medical Corps Reserve. Dated 1st March, 1916. (This cancels the notification respecting this officer which appeared in Executive Minute 322/1916, promulgated in *Commonwealth of Australia Gazette*, No. 45, of 6th April, 1916.)

To be Captains—

Honorary Captain C. W. Whiting, Australian Army Medical Corps Reserve. Dated 1st March, 1916. (This cancels the notification respecting this officer which appeared in Executive Minute 322/1916, promulgated in *Commonwealth of Australia Gazette*, No. 45, of 6th April, 1916.)

Honorary Captain V. M. Coppleson, Australian Army Medical Corps Reserve. Dated 8th March, 1916. (This cancels the notification respecting this officer which appeared in Executive Minute 319/1916, promulgated in *Commonwealth of Australia Gazette*, No. 44, of 6th April, 1916.)

To be Captains—

Honorary Captain P. S. Parkinson, Australian Army Medical Corps Reserve. Dated 17th May, 1916. (This cancels the notification respecting this officer which appeared in Executive Minute 524/1916, promulgated in *Commonwealth of Australia Gazette*, No. 68, of 8th June, 1916.)

Honorary Captain C. W. W. Murray, Australian Army Medical Corps Reserve. Dated 7th March, 1917.

To be Colonels—

Lieutenant-Colonel (temporary Colonel) W. W. Gliblin, C.B. Dated 18th November, 1916.

Lieutenant-Colonel (temporary Colonel) A. H. Sturdee, C.M.G., V.D. Dated 19th November, 1916.

2nd Auxiliary Hospital—

Captain C. J. Tozer is granted the temporary rank of Major whilst holding the appointment of Registrar. Dated 5th January, 1917.

To be Majors—

Honorary Major C. A. Edwards, Australian Army Medical Corps Reserve. Dated 14th July, 1915. (This cancels the notification respecting this officer which appeared in Executive Minute No. 664/1915, promulgated in *Commonwealth of Australia Gazette*, No. 95, of 21st August, 1915.)

Honorary Major F. H. Langlands, Australian Army Medical Corps Reserve. Dated 25th April, 1917.

To be Captains—

Edwyn Mitford Lilley. Dated 1st April, 1917. (This cancels the notification respecting the date of appointment of this officer which appeared in Executive Minute 992/1916, promulgated in *Commonwealth of Australia Gazette*, No. 176, of 30th November, 1916.)

Captain (provisionally) E. Champion, Australian Army Medical Corps. Dated 10th May, 1917.

Honorary Captain L. G. Muirhead, Australian Army Medical Corps Reserve. Dated 16th April, 1917.

Honorary Captain J. Gray, Australian Army Medical Corps Reserve. Dated 10th April, 1917.

Honorary Captain J. V. J. Duhig, Australian Army Medical Corps Reserve. Dated 17th April, 1917.

Honorary Captain H. T. S. Bell, Australian Army Medical Corps Reserve. Dated 16th April, 1917.

Honorary Captain F. A. Lemon, Australian Army Medical Corps Reserve. Dated 24th April, 1917.
David Aubrey Arnot Davis. Dated 1st March, 1917.
Edwin Tyrie. Dated 5th March, 1917.
Theophilus George Allen. Dated 6th March, 1917.
Charles Todd Andrew, William Leonard Millett, and Ernest Moore McCaffrey. Dated 30th March, 1917.

Albert Wadeson Le Souef. Dated 11th April, 1917.
Arthur Braby and Hyman Symonds. Dated 19th April, 1917.

David Crombie. Dated 20th April, 1917.

The appointments of the undermentioned officers to be terminated from dates stated opposite names:—

Colonel W. W. Giblin, C.B. 30th April, 1917.
Lieutenant-Colonel J. E. Dods, D.S.O., M.C. 28th April, 1917.

Lieutenant-Colonel S. S. Argyle. 26th April, 1917.
Major H. Flecker. 28th April, 1917.

Major E. M. Ramsden. 22nd March, 1917.

Captain J. T. Paton. 15th November, 1915.

Captain G. Norrie. 13th April, 1917.

Captain T. S. Douglas. 11th April, 1917.

Captain S. H. Allen. 27th April, 1917.

Captain W. H. Orchard. 27th April, 1917.

Captain E. C. East. 28th April, 1917.

Captain T. H. Strangman. 28th April, 1917.

Australian Naval and Military Expeditionary Force.

To be Captains—

Honorary Captain J. E. Butchart, Australian Army Medical Corps Reserve. Dated 12th March, 1917.

Honorary Captain L. H. Hughes, Australian Army Medical Corps Reserve. Dated 9th January, 1917.

John Thomson Anderson. Dated 9th January, 1917.

Australian Military Forces.

2nd Military District.

Australian Army Medical Corps Reserve—

Samuel Joseph Henry Moreau to be Honorary Captain. Dated 29th May, 1916. (This cancels the notification respecting this officer which appeared in Executive Minute No. 175/1917, promulgated in *Commonwealth of Australia Gazette*, No. 41, of 15th March, 1917.)

Noel Halford Frankl to be Honorary Captain. Dated 30th June, 1915. (This cancels the notification respecting this officer which appeared in Executive Minute No. 301/1916, promulgated in *Commonwealth of Australia Gazette*, No. 40, of 30th March, 1916.)

William Graham Oakeley to be Honorary Captain. Dated 15th March, 1917.

Robert Augustin Gardner to be Honorary Captain. Dated 19th March, 1917.

Frederick William Langton and Walter Llewellyn Rees to be Honorary Captains. Dated 22nd March, 1917.

Charles St. Leger Willis to be Honorary Captain. Dated 2nd April, 1917.

Percy Lewis Broadbent to be Honorary Captain. Dated 12th April, 1917.

Algernon Smith Marr to be Honorary Captain. Dated 14th April, 1917.

Charles Ormonde Birch to be Honorary Captain. Dated 18th April, 1917.

Kevin Byrne to be Honorary Captain. Dated 20th April, 1917.

The resignation of Captain S. W. Hogg of his provisional appointment is accepted. Dated 19th March, 1917.

3rd Military District.

Australian Army Medical Corps Reserve—

Collin Friend to be Honorary Captain. Dated 20th April, 1917.

6th Military District.

Australian Army Medical Corps Reserve—

Ralph Edgar Harris and Arthur Ernest Hayward to be Honorary Captains. Dated 1st April, 1917.

2nd Military District.

Australian Army Medical Corps—

Honorary Captain E. M. Humphery to be transferred from Australian Army Medical Corps Reserve and to be Adjutant (temporarily) with temporary rank and pay of Major, at rate prescribed by Financial and Allowance Regulation 340, whilst holding such appointment. Dated 19th April, 1917.

The appointment of Captain (temporary Major) J. M. Maclean as Adjutant is terminated. Dated 18th April, 1917.

5th Military District.

Australian Army Medical Corps—

Honorary Captain T. J. Loneragan to be Senior Medical Officer, Australian Imperial Force Camp (temporarily), with temporary rank and pay of Major, at rate prescribed by Financial and Allowance Regulation 340, whilst holding such appointment. Dated 16th April, 1917.

Honorary Captain S. C. Moore to be granted temporary rank and pay of Major, at rate prescribed by Financial and Allowance Regulation 340, whilst holding position as Surgeon at No. 8 Australian General Hospital. Dated 1st March, 1917.

6th Military District.

Australian Army Medical Corps—

Lieutenant-Colonel (Honorary Colonel) W. W. Giblin, C.B., to be Principal Medical Officer (part time), with salary at rate of £350 per annum, inclusive of all allowances except travelling. Dated 1st May, 1917.

The appointment of Temporary Lieutenant-Colonel D. H. E. Lines as Principal Medical Officer (temporarily) is terminated. Dated 30th April, 1917.

Grant of Honorary Rank.

Officers who on appointment for active service outside Australia were not serving in the Australian Military Forces.

1st Military District.

To be Honorary Captain—

Philip Sidney Parkinson, late Captain, Australian Naval and Military Expeditionary Force. Dated 7th November, 1914.

2nd Military District.

To be Honorary Major—

William Foster Simmons, late Major, Australian Naval and Military Expeditionary Force. Dated 1st September, 1915.

To be Honorary Captains—

Cedric William Whiting, late Captain, Australian Naval and Military Expeditionary Force. Dated 22nd December, 1914.

Cedric Walter Wilberforce Murray, late Captain, Australian Naval and Military Expeditionary Force. Dated 15th October, 1915.

To be Honorary Captain—

Victor Marcus Coppleson, late Captain, Australian Naval and Military Expeditionary Force. Dated 15th November, 1915.

Officers, who on appointment for service outside Australia, were serving, and are now serving, in the Australian Military Forces.

1st Military District.

To be Honorary Lieutenant-Colonel—

Captain J. E. Dods, D.S.O., M.C., Unattached List. Dated 27th January, 1917.

2nd Military District.

To be Honorary Majors—

Captain H. Flecker and E. M. Ramsden, Australian Army Medical Corps. Dated 1st January, 1916.

3rd Military District.

To be Honorary Major—

Captain R. L. Rosenfield, late Captain, Australian Imperial Force. Dated 1st January, 1916.

6th Military District.

To be Honorary Colonel—

Lieutenant-Colonel W. W. Giblin, C.B., Australian

Army Medical Corps. Dated 18th November, 1916.

Officers who, on appointment for active service outside Australia, were not serving in the Australian Military Forces.

2nd Military District.

To be Honorary Captains—

T. S. Douglas, late Captain, Australian Imperial Force. Dated 1st March, 1916.

T. H. Strangman, late Captain, Australian Imperial Force. Dated 7th March, 1916.

3rd Military District.

To be Honorary Lieutenant-Colonel—

S. S. Argyle, late Lieutenant-Colonel, Australian Imperial Force. Dated 27th January, 1917.

To be Honorary Captain—

W. H. Orchard, late Captain, Australian Imperial Force. Dated 18th December, 1915.

4th Military District.

To be Honorary Captain—

E. C. East, late Captain, Australian Imperial Force. Dated 12th June, 1915.

British Medical Association News.

MEDICO-POLITICAL.

A meeting of the Queensland Branch was held at the B.M.A. Rooms, Adelaide Street, Brisbane, on May 4, 1917, Dr. W. F. Taylor, the Vice-President, in the chair.

A discussion took place on the rule of the Branch dealing with announcements in the daily press of commencement of practice, etc.

Dr. W. F. Taylor informed the members that the rule in existence was that the announcement could be inserted for three months, but that the practitioner was not allowed to add his qualifications.

A member asked why exception had been taken to an announcement which he had inserted in the daily press. The Honorary Secretary replied that as the advertisement contained a statement referring to the place where he had previously been practising, it did not conform strictly to the rule.

Dr. T. R. McKenna stated that the Council had no intention to blame the member. He also alluded to the frequency with which birth notices containing the name of the doctor in attendance were inserted in newspapers. He did not think it was the fault of the doctors, but he suggested that they should try to check the practice.

Dr. Andrew Stewart considered that the rules of the Queensland Branch should be brought into line with those of the other Branches.

Dr. E. W. Kerr Scott moved that the rule *re* advertising be altered so as to conform with the corresponding rule of the New South Wales Branch. Dr. H. T. Bourne seconded the motion.

Dr. J. Lockhart Gibson moved an amendment to the effect that the discussion be deferred until the rules of the other Branches be obtained, provided that no ruling on the question had been given by the Federal Committee.

Colonel A. M. McIntosh seconded the amendment, which was carried.

Herbert Eustace Clarke, L.R.C.P., Irel., 1912, L.R.C.S., L.M.R.C.S., Irel., 1912, of Double Bay, has been nominated for election as a member of the New South Wales Branch.

Medical Societies.

(Affiliated with the British Medical Association.)

NORTH-EASTERN MEDICAL ASSOCIATION.

The annual meeting of the North-Eastern Medical Association was held at Lismore on April 18, 1917, Dr. J. Coen, the President, in the chair.

Dr. J. I. Robertson demonstrated a case of pseudo hyper-tropic muscular paralysis. Dr. A. J. Opie showed a patient with a compound fracture of the tibia, complicated by great loss of bone. Union in good position was obtained.

Dr. J. Coen delivered his presidential address. He emphasized the need for continuing the organization of the profession, and reproved some of the members of the North-Eastern Medical Association for their want of interest in its affairs. He pointed out that the Association was of value to the members in protecting the practices of men absent on military duty, and also in giving expression to the views held by the majority of members.

The Honorary Auditor, Dr. J. I. Robertson, submitted the financial statement, which was adopted. The credit balance for the year was £36 4s. 5d.

In the course of a short discussion, Dr. T. J. Henry pointed out that out-patient departments were absolutely necessary in country hospitals.

Dr. T. J. Henry moved, and Dr. A. J. Opie seconded:—

That in the event of any hospital in the territory of the North-Eastern Medical Association proposing to institute an obstetric ward, the Committee of the Hospital be invited to meet a special meeting of the Association, in order that the views of the latter may be laid before them.

The motion was carried unanimously.

It was moved by Dr. T. J. Henry, seconded by Dr. J. A. Opie, and resolved:—

In view of the considerable number of our members at the war, the number of members necessary for a quorum be reduced to seven for annual meetings.

The following Office-bearers and members of the Committee were elected for the ensuing year:—

President: Dr. C. Franceschi.

Vice-President: Dr. A. J. Opie.

Honorary Secretary and Treasurer: Dr. R. V. Graham.

Honorary Auditor: Dr. J. I. Robertson.

Delegate: Dr. T. J. Henry.

Members of the Committee: Dr. J. Coen, Dr. O. A.

Diethelm, Dr. D. D. Gibson, Dr. T. C. C. Evans, Dr.

W. Crosse, Dr. R. Bell, Dr. T. J. Henry, Dr. P.

Corlis, Dr. A. F. Parker, and Dr. C. M. Anderson.

Dr. W. H. Tomlins informed the meeting that he was about to depart from the district. On the motion of Dr. T. J. Henry, seconded by Dr. J. Coen, it was resolved that the members place on record their appreciation of the services rendered to the North-Eastern Medical Association by Dr. Tomlins during his long connexion with it.

Correspondence.

The attention of correspondents is called to the necessity of signing letters dealing with questions which are about to be submitted to the members of the British Medical Association for decision. It will be recognized that anonymous communications might influence the voting on any particular matter in a different way than if the same communications were signed. The Editor accepts the responsibility for all expressions of opinions appearing in the body of the Journal.

TRADE UNIONISM AND THE BRITISH MEDICAL ASSOCIATION.

Sir,—I should like to call the attention of your readers to the supplement of the *British Medical Journal* of February 24 (p. 34). Therein they will find that the York Panel Committee has discovered and utilized the only valid defence against oppression of the medical profession. Some will be amazed to learn that the Association has merely the status of a company, and is therefore unable to safeguard our immediate interests. Unionism is one of the strongest forces evolved in modern times. It is virtually an *imperium in imperio*, strong enough to thwart and checkmate political dynasties. We are the only body of men which has not sought its protection. It is obvious that we cannot remain much longer in our present position. Around us on all sides are organized societies whose interests are diametrically opposed to our own. A medical society based on trades union plan is the only way of escaping our present difficulties and the dangers ahead. By forming a medical union we should be able to control or abolish contract practice and hospital abuse. Authority would provide for negotiating on even terms with cheese-paring Government departments, and niggardly Local Government boards. All ranks of the profession would be benefited. The Association has done its best, but failed through lack

of power. Its usefulness can be retained, and its influence reinforced by amalgamation with the proposed Medical union. The corollary of unionism is preference to unionists. Experience elsewhere has proved that this force or inducement has succeeded in keeping the ranks of unionism completely filled. Instead of painfully exploring a new pathway, we should be travelling a well-beaten track, with plenty of precedent to guide us. Let a start be made in every Branch of the Association.

May 21, 1917.

Yours, etc.,
GRADUATE.

COMPULSORY ENROLMENT.

Sir,—With reference to the proposed referendum on the question of "Self conscription for service at home or abroad," if it could be arranged that no man need be absent from his practice for a longer period than twelve months, I feel certain that there would be a large majority in favour of the proposed measure. This, surely, should not be difficult to arrange. Many men will vote "No" if they think that, when called upon, the period of absence from their practices will be indefinite.

Yours, etc.,

ALEC. LYONS.

"Nirvana," Church Street, Eaglehawk,
Victoria, May 24, 1917.

Correction.

In the annotation dealing with the Hobart General Hospital, published in last week's issue (page 449), a typographical error has occurred. Dr. V. R. Rattan is a graduate of Harvey College, Chicago, not Harvard College. We understand that Harvey College is a small institution, authorized to issue degrees in medicine.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxiii.

Brisbane Hospital, Junior Resident Medical Officers.

Royal Australian Naval Medical Service, Temporary Surgeons.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
TASMANIA. (Hon. Sec., Bel- lerville, Tasmania.)	Medical Officers in all State-aided Hospitals in Tasmania.
VICTORIA. (Hon. Sec., Medi- cal Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Pro- prietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Ade- laide Street, Bris- bane.)	Medical Officers to the Selwyn Hos- pital, North Queensland. Brisbane United Friendly Society In- stitute.

Branch.	APPOINTMENTS.
SOUTH AUS- TRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide.
WESTERN AUS- TRALIA. (Hon. Sec., 230 St George's Ter- race, Perth.)	Swan District Medical Officer. All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Penrith, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wall- send.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wel- lington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

June 6.—Vic. Branch, B.M.A., Branch.
June 8.—N.S.W. Branch, B.M.A., Clinical.
June 9.—S. Aust. Branch, B.M.A., Council.
June 12.—Tas. Branch, B.M.A., Council and Branch.
June 12.—N.S.W. Branch, B.M.A., Ethics Committee.
June 14.—Vic. Branch, B.M.A., Council.
June 19.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
June 20.—W. Aust. Branch, B.M.A., Branch.
June 20.—South Sydney Med. Assoc. (N.S.W.).
June 22.—Q. Branch, B.M.A., Council.
June 26.—N.S.W. Branch, B.M.A., Medical Politics Com- mittee, Organization and Science Committee.
June 27.—Vic. Branch, B.M.A., Council.
June 29.—S. Aust. Branch, B.M.A., Branch.
June 29.—N.S.W. Branch, B.M.A., Branch.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.